

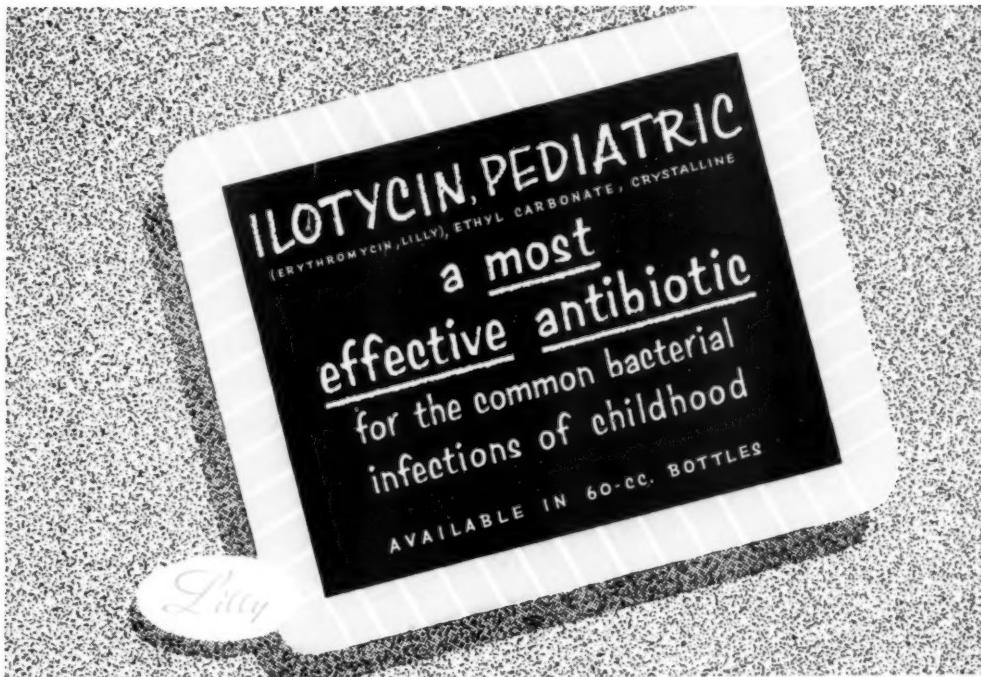
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# Arizona Medicine

*Journal of*

## ARIZONA MEDICAL ASSOCIATION



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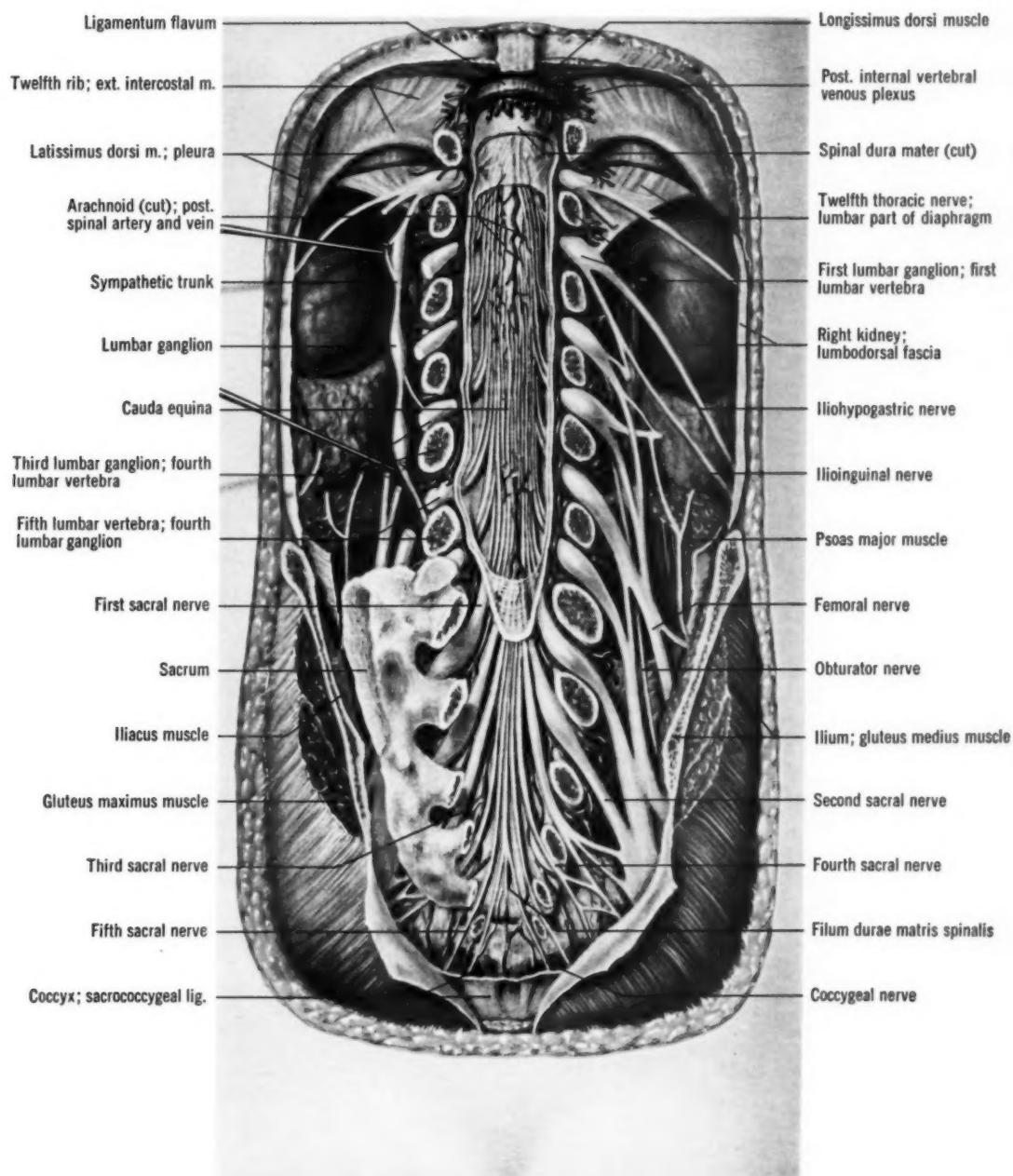
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VOL. 10, NO. 11



NOVEMBER, 1953

## TABLE OF CONTENTS

### OFFICERS

ARIZONA MEDICAL DIRECTORY .....	.VI
WOMAN'S AUXILIARY DIRECTORY .....	.VI

### ORIGINAL ARTICLES

TRICHOMONAS VAGINITIS—A PERENNIAL PROBLEM .....	383
Edmund W. Overstreet, M.D., San Francisco, California	
THE MANAGEMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE .....	387
Travis Winsor, M. D., Los Angeles, California	
THE NEPHROTIC SYNDROME .....	393
Derrill B. Manley, M.D., Phoenix, Arizona	

### MEDICAL PROBLEMS

PHOENIX CLINICAL CLUB .....	397
Howard C. Lawrence, M. D., Phoenix, Arizona	

### PRESIDENT'S PAGE

THE STATE OF HEALTH IN ARIZONA .....	406
Edward M. Hayden, M.D., President, Arizona Medical Association, Inc.	

### EDITORIAL

TOO MANY MEDICAL JOURNALS? .....	407
----------------------------------	-----

### THE PROFESSIONAL BOARD

TUBERCULOSIS PROBLEMS IN ARIZONA .....	409
O. J. Farness, M.D., Tucson, Arizona	

### TOPICS OF CURRENT MEDICAL INTEREST

RX., DX., AND DRs. .....	410
Guillermo Osler, M.D.	
BOOK REVIEWS .....	413
BONE MARROW ASPIRATION .....	413
ARE YOU INSURED? .....	413
CLINICAL SESSION PLANNED FOR GENERAL PRACTITIONER .....	408
MEDICAL COSTS .....	414
Arizona Pharmaceutical Association	

### WOMAN'S AUXILIARY

FALL BOARD MEETING .....	416
Mrs. H. Howard Holmes, Eloy, Arizona	
THE STUDENT NURSE LOAN FUND NEWS .....	417
Mrs. Donald A. Polson, Phoenix, Arizona	

### DIRECTORY

LABORATORIES .....	XXI
SANATORIUM DIRECTORY .....	XXII
DRUGGISTS DIRECTORY .....	XXVI
PHYSICIANS DIRECTORY .....	XXIX

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1. Drabkin, D. L.: Metabolism of Hemin Chromoproteins, *Physiol. Rev.* 31:345 (1951).
  2. The Biosynthesis of Hemoglobin, Editorials, *J.A.M.A.* 150:1223 (Nov. 22) 1952.

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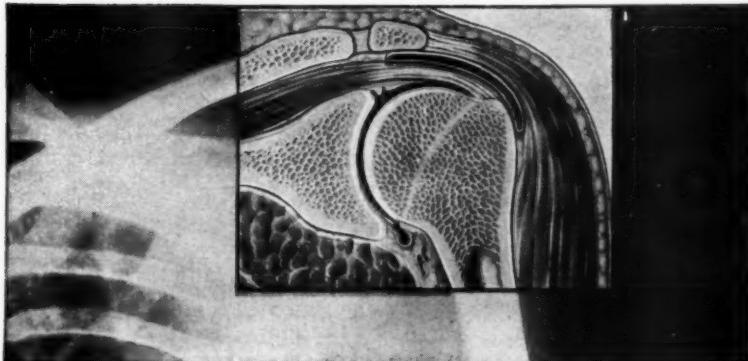
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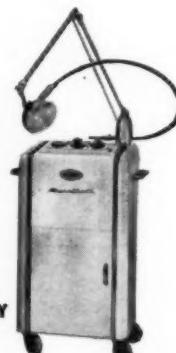
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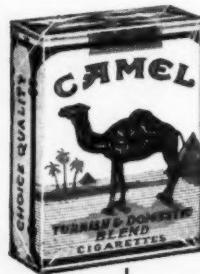
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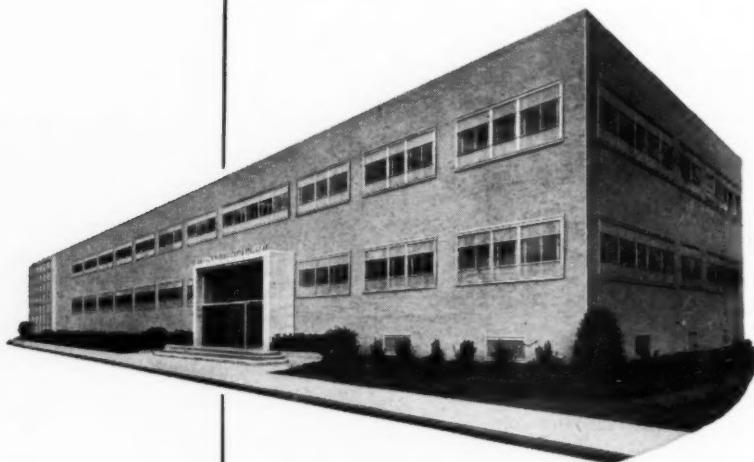
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S

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Pneumonia weather...  
the season  
for bacterial  
respiratory tract  
infections



a time  
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.....**FURADANTIN®** ..  
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The N.N.R.  
monograph  
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66

**Nitrofurantoin.—Furadantin (Eaton).—**

*Actions and Uses.*—Nitrofurantoin, a nitrofuran derivative, exhibits a wide spectrum of antibacterial activity against both gram-positive and gram-negative micro-organisms. It is bacteriostatic and may be bactericidal to the majority of strains of *Escherichia coli*, *Micrococcus (Staphylococcus) pyogenes albus* and *aureus*, *Streptococcus pyogenes*, *Aerobacter aerogenes*, and *Paracolobactrum* species. The drug is less effective against *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Alcaligenes faecalis*, and *Corynebacterium* species; many strains of these organisms may be resistant to it. However, bacterial resistance to other anti-infective agents is not usually accompanied by increase in resistance of the organisms to nitrofurantoin. The drug does not inhibit fungi or viruses.

Nitrofurantoin is useful by oral administration for the treatment of bacterial infections of the urinary tract and is indicated in pyelonephritis, pyelitis, and cystitis caused by bacteria sensitive to the drug. It is not intended to replace surgery when mechanical obstruction or stasis is present. Following oral administration, approximately 40% is excreted unchanged in the urine. The remainder is apparently catabolized by various body tissues into inactive, brownish compounds that may tint the urine. Only negligible amounts of the drug are recovered from the feces. Urinary excretion is sufficiently rapid to require administration of the drug at four to six hour intervals to maintain antibacterial concentration. The low oral dosage necessary to maintain an effective urinary concentration is not associated with detectable blood levels. The high solubility of nitrofurantoin, even in acid urine, and the low dosage required diminish the likelihood of crystalluria.

Nitrofurantoin has a low toxicity. With oral administration it occasionally produces nausea and emesis; however, these reactions may be obviated by slight reduction in dosage. An occasional case of sensitization has been noted, consisting of a diffuse erythematous maculopapular eruption of the skin. This has been readily controlled by discontinuing administration of the drug. Animal studies, using large doses administered over a prolonged period, have revealed a decrease in the maturation of spermatozoa, but this effect is reversible following discontinuance of the drug. Until more is known concerning its long-term effects, blood cell studies should be made during therapy. Frequent or prolonged treatment is not advised until the drug has received more widespread study. It is otherwise contraindicated in the presence of anuria, oliguria, or severe renal damage.

*Dosage.*—Nitrofurantoin is administered orally in an average total daily dosage of 5 to 8 mg. per kilogram (2.2 to 3.6 mg. per pound) of body weight. One-fourth of this amount is administered four times daily—with each meal and with food at bedtime to prevent or minimize nausea. For refractory infections such as *Proteus* and *Pseudomonas* species, total daily dosage may be increased to a maximum of 10 mg. per kilogram (4.5 mg. per pound) of body weight. If nausea is severe, the dosage may be reduced. Medication should be continued for at least three days after sterility of the urine is achieved.

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## ANSWERS TO COMMON QUESTIONS

# about 'Ilotycin'

(ERYTHROMYCIN, LILLY)

**Q. What is the status of 'Ilotycin' in the treatment of pneumonia?**

In pneumonia caused by pneumococci and staphylococci, 'Ilotycin' is very effective. Doses of 200 mg. every four hours are recommended.

**Q. Is 'Ilotycin' effective in urinary tract infections?**

Yes, when the causative organism is susceptible to its action and when there is a minimum of mechanical factors such as strictures, stone, and the like.

**Q. How long should a streptococcus throat infection be treated with 'Ilotycin'?**

The recommended minimum course for any antibiotic is five days. 'Ilotycin' completely eradicates the organisms within five days and thereby prevents recurrence of the infection.

**Q. Is there any contraindication to the use of 'Ilotycin' immediately following a parenteral dose of penicillin?**

No. 'Ilotycin' does not inhibit the activity of penicillin. There is probably no

specific indication for using penicillin in addition to 'Ilotycin.' Experiments both in vitro and with animals have shown no evidence that 'Ilotycin' is either antagonistic to or synergistic with penicillin or the "mycins."

**Q. Are coliform bacteria less sensitive to 'Ilotycin' than to other "broad-spectrum" antibiotics?**

Yes. There is less possibility of monilia and fungus overgrowth in the intestinal tract with 'Ilotycin,' since the predominant organisms of the normal intestinal flora are relatively insensitive to the antibiotic action of 'Ilotycin.'

'Ilotycin' is supplied in 100 and 200-mg. specially coated tablets . . . at pharmacies everywhere.



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# ARIZONA MEDICINE

*Journal of Arizona Medical Association*

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## Original ARTICLES

### TRICHOMONAS VAGINITIS—A PERENNIAL PROBLEM

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One of the most common patients seen in the practice of Medicine is the woman whose complaint is of profuse vaginal discharge, usually accompanied by fairly severe itching and burning of the vagina and vulva. Many more such patients come to general practitioners and family physicians than are ever seen by gynecologists. Indeed, the problem is such a common one that it is most doubtful whether gynecologists alone can handle it. Moreover, such leukorrhea and pruritus only rarely entails complex or serious implications, so the management of it, for the most part, lies much more in the province of the general physician than it does in that of the gynecologist.

Such symptomatology is frequently caused by infestation with trichomonas vaginalis. This little protozoan has posed worrisome problems for most of us at one time or another, because even today our information about its habits and propensities is still so faulty. Moreover, even today the trichomonad is not searched for as regularly and effectively as one would wish. Obviously, whenever any woman complains of vaginal itching and burning the possibility of trichomonas infestation must be kept in mind during the course of her study. Suspicion will be increased if observation of the vaginal discharge shows it to be yellowish in color, frothy and bubbly in nature, and to have a rather typical foul odor. Suspicion will increase even more if inspection of the vaginal and cervical mucous membranes show punctate hemorrhagic

areas, small petechiae scattered here and there on the vaginal walls. Unfortunately, it is at this point that many physicians fall down in confirming the diagnosis of trichomonas vaginitis. For inspection of the vaginal walls, of course, a speculum is used. Most physicians, without thinking further about it, lubricate the speculum with one of the usual vaginal lubricating jellies before inserting it into the vagina. All of these commercial jellies are on the acid side. And the introduction of even a small amount of acid jelly into the vagina before examining a specimen of the vaginal discharge for trichomonads can completely immobilize the organisms so that they are missed when the smear is examined. Actually, it is not difficult to insert a perfectly dry speculum for vaginal inspection, especially when a considerable vaginal discharge is present. This should invariably be done when a search for trichomonads is in progress.

Many physicians, too, have the impression that the identification of trichomonads by laboratory means is a rather tricky matter, requiring special supplies. This is not by any means the case. An ordinary glass slide, a cover slip, and a dropper bottle of simple saline solution, or better yet Ringer's solution, are the only requirements. Much the best results are obtained if the solution is near body temperature. It is a simple enough practice, at the start of any office session, to place the dropper bottle of Ringer's solution in the office sterilizer for a few minutes to warm it. With the cervix and vaginal walls visualized through

Presented before the Annual Meeting of the Arizona Medical Association, Tucson, Arizona, April 27, 1953.

a speculum, a sample of vaginal discharge is taken up on an ordinary cotton applicator. It is important to apply the applicator not only to the vaginal discharge present in the posterior vaginal fornix, but also to the external cervical os. The trichomonads are more likely to be actively motile in the alkaline cervical secretions than in the acid vaginal secretions. The cotton applicator is then simply shaken gently in a few drops of Ringer's solution directly on the slide in order to transfer a good portion of the discharge to the fluid. A cover slip is then applied. It is most important, of course, to examine this wet preparation under the microscope within a few minutes, before any great cooling has immobilized the active trichomonads. The identification of the protozoa, moving jerkily about by flagella and undulating membranes, is ordinarily easy if any appreciable number of active ones is present.

Quite often, however, no definite trichomonads are found in such a preparation even though a trichomonas infestation actually does exist in the patient. For this reason it is extremely valuable, as a matter of routine, to obtain vaginal cytology smears of the Papanicoloau-Traut type in all such patients. Not only is routine cancer screening accomplished, but in obscure cases of trichomonas vaginitis the organisms can be identified in such a smear when the wet preparation fails to reveal them.

Careful routine use of these two diagnostic methods is sufficient in almost 100% of cases. For practical purposes they are sufficient. Only in rare cases indeed will it be necessary to undertake the specialized procedure of culturing the organism on special media in order to demonstrate its presence.

The patient informed of a trichomonas infestation is usually horrified at the thought of the existence of parasites in the vagina. Reassurance is usually successful, however, if it is pointed out to the patient that the infestation is not serious, that it is much like having severe dandruff or athlete's foot, and that it is almost as prevalent. When it comes to informing the patient of how she acquired the infestation — which most women immediately want to know — the answer is more difficult. The best one which can be given today, although it is by no means a complete and satisfactory one, is that the infestation probably occurs by body to body contact. It is known, for example, that

the highest incidence of trichomonas infestations is found in girls' orphanages and old ladies' homes. A very high percentage of daughters of mothers afflicted with trichomonas vaginitis also have the infestation. Just how much part is played by the borrowing back and forth of women's clothing or the common use of bedding is not definitely known. Both of these are usual habits among girls and women, and in the face of a trichomonas vaginitis it is probably best to warn the patient to eliminate such practices during treatment. It is suspected, however, that viable trichomonads cannot be carried very long in a dry state on ordinary clothing. Nevertheless, it is recommended that during the treatment of a trichomonas infestation the patient should be instructed to use only thoroughly washed unclothing and well-cleaned outer clothing for fear of possible re-infestation from previously used clothes.

It is well established today that vaginal infestation cannot be transmitted from the patient's own rectal area. Almost all humans carry in the intestinal tract a form of trichomonas known as trichomonas hominis. Trussell's work, however, has shown rather conclusively that this organism is a different species which cannot survive in the vagina. Consequently, all of the previous emphasis on rectal hygiene at the time of bowel movements is no longer necessary.

Of increasing importance, however, is the role played by the male sex partner in female re-infestation. It is possible for the male to carry trichomonas organisms in the urethra, in the prostate and seminal vesicles, and in the bladder, without any symptoms whatever. Consequently, in any case of trichomonas vaginitis which seems to remain relatively intractable to treatment, an examination of the husband's centrifuged urine sediment and prostatic massage fluid must be included, to rule out a possible source of continual re-infestation. Attention to this fact will result in a very much higher cure rate in the therapeutically resistant cases of trichomonas vaginitis.

On the other hand, certain factors in the female seem to mitigate against cure; they should be kept constantly in mind in planning a therapeutic regimen. For reasons which are not understood at the present time, women who have had hysterectomy, either total or sub-total, are much more prone to tenacious trichomonas infestations. The same is true following extensive

cervical cauterization or conization. And the menopausal or post-menopausal woman is unusually refractory to treatment. In any of these situations, then, it will be necessary to employ a much more vigorous and meticulous treatment regimen.

Unsuccessful treatment is also attendant upon failure to search carefully for foci of re-infestation in the patient herself. The three prime area are the cervical canal (and possibly the uterus), Skene's ducts, and the bladder. Even though all sorts of powerful trichomonacides are employed in the vagina, if the organisms are well established deep in the glands of the cervical canal, they simply are not reached by the medications, and upon completion of the course of treatment re-infestation of the vagina easily occurs. This is one of the factors which accounts for the tendency to re-activation of trichomonas vaginitis by each menstrual period.

Almost all cases of trichomonas vaginitis are accompanied by a cervicitis and endocervicitis. The purulent discharge from the external cervical os is the tip-off. So it is essential that some sort of treatment be applied to the cervical canal. In the presence of a considerable erosion and eversion of the cervix with obvious long-standing chronic cervicitis, use of the actual heat cautery may be necessary to obtain satisfactory healing and to eradicate this focus of infection for the trichomads. At the very least, some sort of chemical cauterization of the cervical canal should be carried out. It has been our experience that Negatan® Solution is a very satisfactory agent for this purpose. 5% or 10% silver nitrate solution may also be used.

The same situation obtains for the Skene's ducts. At any initial examination for leukorrhea and pruritus it is most important to carry out a gentle stripping maneuver under the urethra in the hope of expressing drops of pus from one or more Skene's ducts. Naturally, where trichomonas infestation is suspected these drops of pus should be smeared out on a wet preparation and examined immediately for the presence of trichomonads. This search is especially important in the intractable cases. Ordinarily the stripping procedures and the routine treatment for trichomonas vaginitis will eliminate Skene's duct infestations as well. But not infrequently it may be necessary to resort to complete obliteration of the Skene's ducts before this source of re-infestation can be eliminated. This, of course,

must be accomplished by coagulation as a hospital procedure.

The female bladder should not be slighted in any investigational and treatment program. In intractable cases the centrifuged urinary sediment should be examined in wet smear preparation for the presence of active trichomonads. Fortunately, their eradication here is not nearly as difficult as in the male bladder. Ordinarily a few installations of one or two ounces of 1:1000 silver nitrate solution into the bladder will serve to eliminate them.

What can be said of the efficacy of modern treatment methods for the vaginitis itself? All sorts of claims are heard today about the efficiency of particular products in the treatment of trichomonas vaginitis. The furor at the present time revolves about a product called Vagisol® which is found to be very effective in the hands of Shaw and his co-workers in Los Angeles. Actually, a persual of Shaw's paper will demonstrate that their treatment regimen was an extremely meticulous one. This is the important point! There are plenty of good protozoacides on the market. What counts is not which one is used, but how carefully it is employed by physicians and patients. So it is essential to emphasize the important basic principles in their use.

The primary aim is to be certain that some protozoacidal material is constantly present in the vagina and on the vulva twenty-four hours a day. This obviously is not the case, for example, if a patient uses the vaginal application at night, then takes a douche upon arising in the morning, and applies no further local medication during the daytime. So instructions to patients must make this basic principle clear.

Most important of all is the fact that any protozoacidal treatment must continue steadily through at least one menstrual period — preferably two or three periods — being employed daily during the menstrual flow. This is indispensable if any success at all is to be had in the treatment of this affliction. Almost all cases of trichomonas vaginitis will come rather easily under control in the interval between two menstrual periods. But if treatment is discontinued throughout the following menstrual period, at its end the infestation will usually be back at about the same level as when the patient was first seen. Unfortunately this fact is not widely enough known. Over and over again today

patients are seen with what is said to be an intractable, treatment-resistant trichomonas infestation, but history-taking often reveals that such patients have never had treatment prescribed during any menstrual period. When this is supplied the disease clears rather quickly.

The third principle of importance has to do with duration of treatment. There is no known method of treatment today which will obtain a high percentage of cures in a short time. A minimum of one month is required, and two months is probably preferable as a routine. In intractable cases it may be necessary to continue treatment for as long as six to eight months, but during such a period of time the amount and timing of medication can gradually be tapered off.

Whether or not treatment of trichomonas vaginitis is commenced with office applications of a trichomonacide is probably rather immaterial. A single good cleansing of the vagina and careful application of a powder material, for example, is perhaps worthwhile. But thereafter there is little to be gained by applying the treatment in the office, and the patient can apply the medications just as effectively at home, provided one can be certain she will stick to it. A satisfactory practice is to employ one trichomonacide in the form of a jelly preparation combined with another in the form of a tablet preparation, to be used as a starting treatment over a period of at least two weeks. Preferably this should include a menstrual period. Medication should be applied both night and morning during this time. It is essential also to emphasize to the patient the importance of applying the jelly preparation not only within the vagina by means of an applicator but also over the vulva and around the urethral meatus and Skene's duct area. After two weeks the progress of the patient should be checked, and if it seems good, she may continue simply with the tablet trichomonacide morning and night. For the second month one usually need only prescribe the tablet trichomonacide at night. This regimen will cure well over 90% of cases.

The attitude toward douches in the treatment of trichomonas vaginitis has altered considerably in recent years. Their effectiveness is not nearly as great as that of the jelly preparations. In all probability douches are of actual value only as occasional cleansing agents for the vagina. In addition, at the start of treatment they may be

helpful in terms of their soothing effect, and employing them as hot as possible will aid in the healing of ulcerated, irritated areas. In general, however, after the first week of treatment douches need not be used more than two or three times a week. It is important also to remind the patient that whenever she employs a douche for cleansing purposes, immediately upon its completion more trichomonacidal medication must be applied to the vagina and vulva. Naturally, only acid douches should be used.

It is worthwhile to digress a moment to reiterate that under no circumstances, at any time, should a woman use anything but an acid douche for cleansing purposes. In this country entirely too frequent use is still made of water, salt, or, worst of all, soda douches. Such douches eventually produce some degree of vaginal irritation by upsetting the normal vaginal acidity. Especially after the menopause, the use of soda douches can result in the production of a florid vaginitis. In general the most satisfactory acid douche for cleansing purposes consists simply of two quarts of warm water containing two to four ounces of ordinary kitchen vinegar. It is effective, it is acceptable, and it is inexpensive.

One more comment should be made about intractable trichomonas cases. Aside from the special investigative and treatment procedures already outlined, it is essential to give attention to the fact that certain strains of trichomonads may become resistant to one or another of the trichomonacides. Consequently, in the management of intractable cases over long periods of time, it is important to change occasionally from one trichomonacide to another in order to be as certain as possible of eradicating the organisms.

What can be said about adjunct methods of treatment? Obviously, in any trichomonas infestation of more than moderate degree, other organisms have gained access to the irritated tissues as secondary invaders. Consequently, it is often worthwhile to use local vaginal medication designed to suppress them. The local antibiotic preparations are thoroughly satisfactory for this purpose. They appear to be most effective in jelly form, as, for example, the triple sulfa creams, the bacitracin ointments, and the like. Vigorous warning should be made against the local use of penicillin in the vagina. It results in a very high incidence of penicillin sensitization. Caution should also be expressed about

the use of aureomycin and terramycin either by mouth or locally. With them the patient may obtain excellent eradication of the trichomonads and the secondary invaders, only to develop a bad infestation of monilia.

No matter howe careful and able the treat-

ment, one will occasionally encounter a case of trichomonas vaginitis which seems to persist in spite of the best treatment methods. But with meticulous attention to the principles and methods outlined above, such cases should be few and far between.

## THE MANAGEMENT OF PERIPHERAL ARTERIAL OCCLUSIVE DISEASE

Travis Winsor, M.D., F. A. C. P. \*

Los Angeles, California

The proper management of diseases of the peripheral arteries depends upon an accurate evaluation of the state of the peripheral circulation which may be examined advantageously by clinical as well as laboratory means. Clinical observations include a search for the presence or absence of intermittent claudication, pulsations of the peripheral arteries, elevational pallor or dependent rubor, and changes in the tissues of the limbs. The laboratory examination is carried out with the plethysmograph which supplies objective data about the peripheral circulation and gives information which cannot be obtained in any other way(1). Certain measurements usually are made: Determinations of the degree of peripheral resistance aid in the detection of arterial disease. Measurements of the systolic blood pressures and pulsations at various locations on the extremities aid in locating arterial obstructions(2). Evaluation of the various factors controlling vasomotor tone assists in the differentiation of functional from organic diseases. Determinations of blood flow through large arteries as well as through collateral vessels demonstrate the relative value of various vasodilating therapeutic agents or procedures(3). Of these measurements the determination of the degree of peripheral resistance especially is important as a high peripheral resistance is the most common cause of a decreased blood flow to a limb.

There are several factors which may cause an abnormally high peripheral resistance. These can be divided into two main groups:

(1) neurogenic factor producing vasoconstriction through nervous mechanisms and (2) extra-neurogenic factors causing vasoconstriction by disease, mechanical, chemical or other means.

The neurogenic control of peripheral flow can be demonstrated by measuring the toe circulation before and after a posterior tibial nerve block. This procedure removes sympathetic vasoconstrictor impulses which limit blood flow to the toe (fig 1). The block is carried out by injecting 5 cc of 2% Novocaine through a  $\frac{1}{2}$  inch 26 guage needle into the region of the posterior tibial nerve at a point on a line one-third the distance from the posterior aspect of the internal malleolus to the tip of the heel.

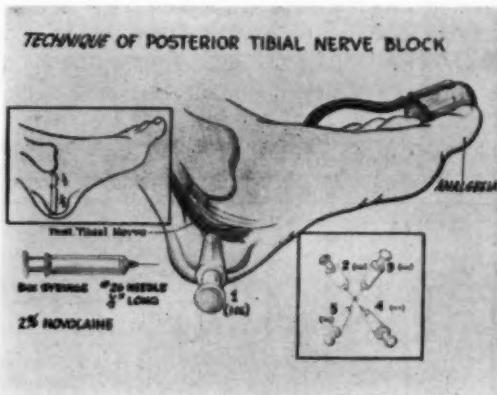


Fig. 1. The posterior tibial nerve block removes sympathetic vasoconstrictor impulses to the toe thereby allowing an estimation of the amount of neurogenic factor controlling peripheral resistance.

The needle is inserted the full length of its shaft and 1 cc is injected. The needle is withdrawn slightly and redirected in four different directions and 1 cc is injected in each location. A satisfactory block is evidenced by analgesia of the ball of the second toe within 10 minutes of the injection. The magnitude of the neurogenic factor may be estimated by measurements of blood flow through the toe by means of the plethysmograph before and after the block. If plethysmographic measurements are not possible skin temperature measurements made with an

\* From the Cardiovascular Foundation, Hospital of the Good Samaritan, Los Angeles, California and the University of Southern California, Medical School, Department of Medicine.

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The studies summarized here were carried out by grants from the Los Angeles Heart Association.

accurate instrument\* may be employed.

The extraneurogenic factors limiting the peripheral circulation are organic disease involving the blood vessel wall, increased inherent tone of arteries, circulating endogenous or exogenous chemical vasoconstrictors such as nor-epinephrine, pituitrin, angiotonin, ergot and abnormalities of the blood. In order to evaluate the extraneurogenic factor tests are carried out after sympatholytic procedures such as a posterior tibial nerve block. The technique is to measure the peripheral resistance before and after the administration of pharmacologic agents with known actions. Thus an adrenalytic agent, such as M. Imidazoline\*\* is used to demonstrate adrenergic influences, and alcohol is employed to demonstrate the degree of inherent tone. When neither of these agents produces a decrease in peripheral resistance and the resistance is abnormally high, organic disease or other causes are responsible.

The results of these clinical and laboratory studies form a basis for rational therapy. Although every patient with peripheral vascular disease need not be studied in the manner outlined, such studies are necessary in difficult or unusual cases and in formulating general rules

for therapy which are based on scientific measurements rather than on clinical impressions.

The general medical management of ambulatory patients with peripheral arterial occlusive disease of the lower extremities usually is as follows:

- Walking at any one period is limited to one-half the distance which causes pain, and the stride is shortened 50 percent to slow the walking rate. This is advised on the basis of experiments which show that exercise of a foot with arterial disease decreases blood flow through the toes probably by increasing flow through arteriovenous shunts proximal to the diseased vessels (Fig. 2).

- The head of the bed is elevated 4 to 6 inches and advice is given against the foot-up position. If Buerger's exercises are prescribed, the foot-up phase is eliminated. The foot-down position allows gravitational forces to draw blood into the foot through the arterial channels. Blood is returned to the heart through venous channels against gravity with the aid of venous valves, muscle movement and respiration. The latter exerts a sucking action on the veins of the thorax which favors venous return.

- A high protein, low fat, low calorie diet

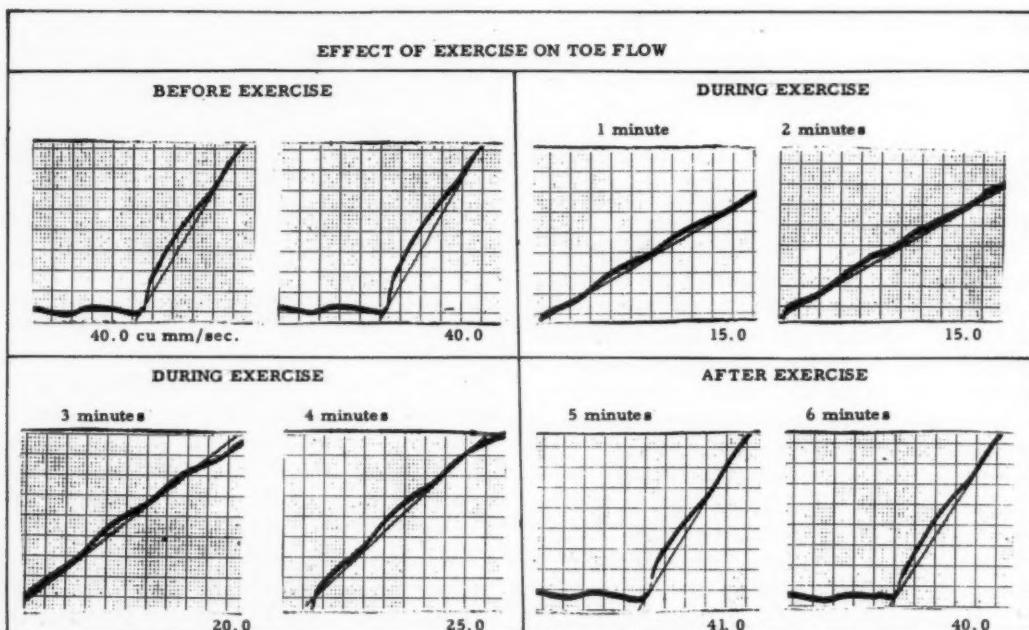


Fig. 2. Decreased blood flow to toes during exercise due probably to increased flow through healthy vessels.

\* Thermister thermometer  
\*\* Regitine

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is advised. A high protein meal has a high specific dynamic action and increases pulse rate, blood pressure, and peripheral blood flow (Fig. 3). The low fat diet is advised because of the questionable place fat plays in the formation of atheromata and arteriosclerosis. The low caloric diet is used to reduce muscle work by reducing body weight.

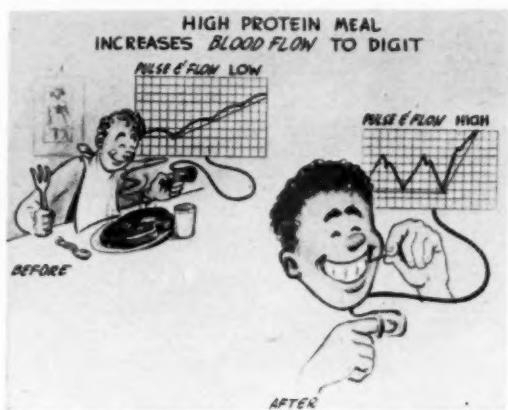


Fig. 3. Eating a high protein meal increases peripheral blood flow.

4. Moderate body heating in the form of warm clothing and an electric blanket often are beneficial. Excessive body heating is to be avoided as it decreases flow to the diseased parts by dilating healthy vessels more than diseased vessels. This results in the blood flowing to the dilated areas thus decreasing flow through the diseased vascular bed (Fig. 4).

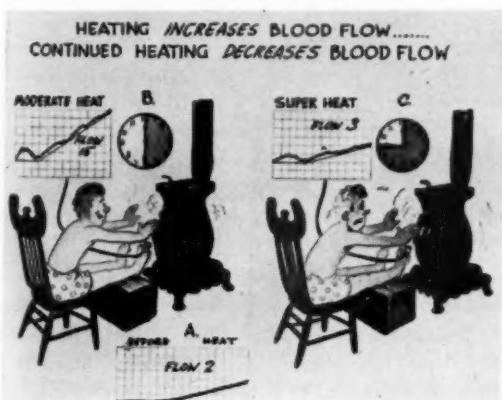


Fig. 4. Moderate indirect body heating increases blood flow to a diseased part while excessive heating decreases flow.

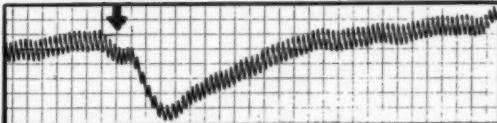
5. Alcohol in the form of whiskey, 45 to 60 cc. orally, two or three times a day is of value when contraindications are not present. Contraindications are: cirrhosis of the liver, gastritis, peptic ulcer, pancreatitis, alcoholism, idiosyn-

crasy, working conditions which do not permit the use of alcohol, or excessive family or patient prejudice. As alcohol is the most effective oral vasodilator available, its use is urged especially in patients with severe arterial insufficiency.

6. Drugs which produce vasodilation, to be most effective, should be used in combination with other vasodilating techniques such as indirect body heating. B. Imidazoline\* 25 or 50 mg. three times a day, after meals is of value (Fig. 5). Larger doses are seldom reached because of nausea and nervousness. This drug is an adrenergic blocking agent with histamine like properties and inhibits certain sympathetic vasoconstrictive reflexes thereby increasing blood flow to the periphery. The increase in flow is less than half of that produced by a lumbar sympathectomy. Other agents such as muscle extracts, calcium, sodium tetrathionate, nicotinic acid, vitamin K, prostigmine, theophylline, hexamethonium, and pentamethonium have not been found of practical value.

**B. IMIDAZOLINE HAS SYMPATHETIC BLOCKING PROPERTIES AS THE TICKLE REFLEX IS INHIBITED AFTER TAKING THE DRUG.**

**BEFORE B. IMIDAZOLINE (PRISCOLINE)  
TICKLE REFLEX PRESENT.**



**AFTER B. IMIDAZOLINE 30 MG. IMI  
TICKLE REFLEX ABSENT**

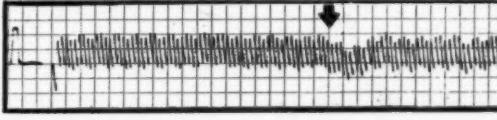


Fig. 5. Sympathetic blocking effect of B. imidazoline showing lack of response to sympathetic stimulus after drug.

7. Smoking may or may not be harmful. Nicotine is at least one of the vasoconstrictive agents in tobacco as certain partially denicotinized cigarettes produce less vasoconstriction than brands containing more nicotine. The flow is not decreased to the sympathectomized limb in patients with arteriosclerosis obliterans indicating a neurogenic site of action of tobacco. Vasoconstriction occurs in normal individuals, in patients with arteriosclerosis obliterans and especially in patients with thromboangiitis obliterans. As the vasoconstriction is greater and more prolonged in the latter group it is important that these patients stop smoking. Patients with arteriosclerosis obliterans are requested to stop

\* Priscoline

smoking but if they fail to do so insistence is not necessary as the emotional disturbances created are in themselves vasoconstrictive.

Certain complications or symptoms in patients with peripheral vascular disease require special therapy:

1. Intermittent claudication: The results of treatment are irregular and unpredictable. General medical management and lumbar sympathectomy improves walking ability in less than 30 percent of patients.

2. Neuritis: Ischemic neuritis is irregular in response, however a 3 weeks course of high potency Vitamin B complex with C and B 12 given by injection has produced improvement in a low percentage of patients. Diabetic neuritis, if treated early often responds dramatically to Vitamin B 12. Oral treatment, 50 micrograms three times a day is rarely sufficient. One hundred micrograms daily intramuscularly is more effective. If this fails, extract of pregnant cow's liver\* may be tried, 5 cc. intramuscularly daily for 10 days. If improvement occurs this therapy is continued 1 or 2 times weekly. Whole vitamin B complex intramuscularly in addition to the above schemes is used. Diabetic neuritis of long standing usually does not respond.

3. Ulceration of the skin: This offers problems in healing, especially in diabetic patients and often requires hospitalization. The foot-down position is used as it results in increased blood flow to the toes however after a period of dependency edema may appear which decreases flow because of the increased tissue pressure. To counteract edema an oscillating bed is employed. The bed is adjusted to give minimum foot-up and maximum foot-down position allowing gravity to increase arterial flow during the foot-down period but prevents edema by decreasing venous congestion during the foot-up period (Fig. 6). The changes of pressure in the toe produced by the oscillations serve as a peripheral pump and favor exchange of tissue fluids thereby facilitating healing. For maximum effect, a vasodilating procedure either medical or surgical, should be used in addition to the oscillating bed. As the blood flow through the skin of the feet is controlled largely by the sympathetic nervous system, sympatholytic agents or procedures are important in the healing of cutaneous ulcers. B. imidazoline 30 mg. tid intramuscularly with oral alcohol is employed.

\* Biohepuin

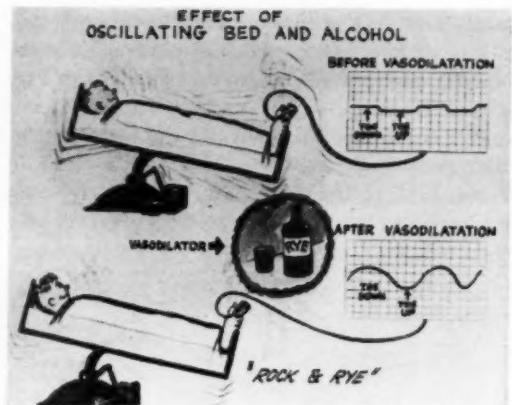


Fig. 6. Blood flow of an extremity may be increased by use of the oscillating bed, especially if a vasodilating agent is used concurrently.

A continuous lumbar sympathetic block using an indwelling vinyl catheter or a long acting local anesthetic\* produces vasodilatation for 5 to 7 days. An alcohol nerve block may be carried out in patients who are not sensitive to pain as a painful neuritis lasting 2 to 3 months may follow. Alcohol block should be performed by one properly trained in this procedure who has suitable equipment. The technique is carried out by inserting a needle in the region of the second lumbar ganglion. A skin temperature recorder is attached to the skin of a toe and reading made. One cc. of Novocaine 2% is injected. If a sharp rise in temperature occurs in 5 to 10 minutes the needle is placed properly and 1 to 2 cc. of 95% ethyl alcohol is injected into the region of the second lumbar sympathetic ganglion. The third lumbar ganglion may be injected at a later time if the sympathetic blocking effect is incomplete. In addition to or instead of nerve blocks the intra-arterial injection of histamine phosphate 2.75 mg. in 300 cc. of saline, 10 mg. of B. imidazoline or 0.3 mg. of CCK 179\*\* with or without antibiotics daily for 10 or more days is used.

5. Night cramps: Night cramps may be due to arterial insufficiency, prolonged standing, poor foot posture, flat arches, genu valgus, potassium imbalance (in diabetics), hyponatremia, hypochloremia, nerve root irritation, venous stasis, hypocalcemia, hyperphosphatemia (pregnancy), and other causes. Specific treatment such as aluminum hydroxide for the hyperphosphatemia of pregnancy, elastic bandages for venous insufficiency etc., is indicated. Symptomatic treatment

\* Efocaine

\*\* Hydergerine

is satisfactory and consists of diphenhydramine hydrochloride\* 50 mg. and quinidine sulfate grs. III (grams 0.2) with evening meals and upon going to bed.

6. Raynaud's Syndrome: This may be due either to functional or organic vascular disease or both. The vasospasm may be initiated by cold or neurogenic factors or other causes. The importance of cold may be revealed by noting the length of time required for the fingers to reach 30 degrees C. after immersing the hands in water 15 degrees C. for 15 minutes with the patient resting in a comfortable warm environment. Normally this value is reached in a very few minutes but with cold sensitivity it may not be reached for an hour. Cold sensitivity is treated by warm clothing, the use of a sportsman's type hand warmer\*\*, 2% nitroglycerine ointment locally twice a day and B. imidazoline. CCK 179 is a useful adjunct in patients with excessive nervousness which is common in patients with this disease (Fig 7). If excessive perspiration of the hands is present, methantheline bromide\*\*\* is employed. Thoracic sympathectomy seldom is employed as a moderate return of sympathetic function occurs generally in 2 to



Fig. 7. The DH alkaloids of ergot (CCK 179) shorten the duration of the cold-induced vasoconstriction in Raynaud's disease. Before the drug the skin temperature reached 30 degrees in 45 minutes but after the drug it reached this level in 35 minutes.

3 years. This is in contrast to the lumbar sympathectomy which shows only slight return of function in a small percentage of patients after many years.

7. Thrombosis or embolis of large arteries: Heparin is given 100 mg. intravenously immediately upon diagnosis to prevent extension of the clot. Preparations then are made for passing a catheter

into the caudal canal to the level of the 2nd lumbar vertebrae and 25 cc. of 1% Novocaine injected to increase collateral circulation. The catheter is passed when the heparin effect is low or after the administration of protamine sulfate to temporarily inhibit the heparin action. After the catheter has been placed heparin is resumed, 75 mg. every six hours intravenously or according to the coagulation time (2 times normal 4 to 6 hours after injection). If the desired increase in circulation does not occur with this procedure as shown by plethysmographic measurements an embolectomy is performed providing the vascular accident has occurred within the last few hours. When thrombosis is present

#### DISEASE OF ABDOMINAL AORTA REVEALED BY LOW PULSATIONS IN LEGS

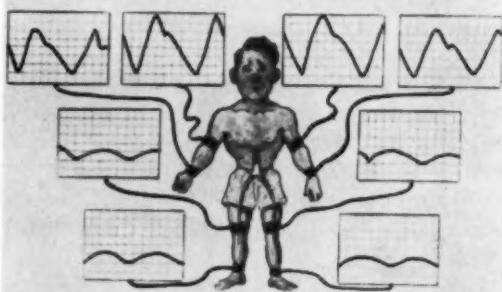


Fig. 8. Aortic obstruction located by recording pulsations of limbs at various sites.

attempted surgical removal of the clot usually is unsuccessful and continuous anti-coagulant therapy generally is employed.

8. Chronic occlusion of the abdominal aorta (Leriche Syndrome) (Fig. 8): This produces a syndrome characterized by decreased circulation to the legs with associated symptoms such as impotence, low back pain and development of a characteristic gait. The most conservative treatment is medical as described above for the ambulatory patient with organic arterial occlusive disease. If minimal degeneration of the tissues is present, such as atrophy of the skin of feet and toes, a bilateral lumbar sympathectomy is often of value. With rapid degeneration of the tissues one considers removal of the obstruction with restoration of the lumen of the vessels. Thromboendarterectomy may be carried out by surgeons experienced in this field. Isolated, short-segment obstruction of an iliac artery is suitable for this type of therapy. This operation takes many hours to perform and

\* Benadryl  
\*\* Jon E  
\*\*\* Bantline

thrombosis after surgery occurs not uncommonly. Another solution to the problem is an aortic graft, in which a suitable aortic segment properly sterilized and previously stored in special solutions or in a frozen state is employed. This procedure has been used for at least 5 years in the repair of coarctation of the aorta with satisfactory results.

9. Abdominal aneurysm: This may be treated in several ways, none of which is satisfactory entirely. A vein-in-lay graft has been employed with success in certain patients by Freeman 4. An aortic graft is feasible in certain cases if the aneurysm is not too extensive. Wiring or wrapping of the aneurysm as well as partial ligation of the aorta above the aneurysm have not produced satisfactory results in a significant number of patients.

10. Gangrene: Patient conservative treatment carried out over a long period of time may save limbs. Gas gangrene antitoxin is given. As a last resort however amputation may be necessary. The site for amputation should be selected carefully and decisions are made in part at least on the basis of the blood pressures in the lower extremities as compared with those of the upper extremities (plethysmographic technique) (Fig. 9).

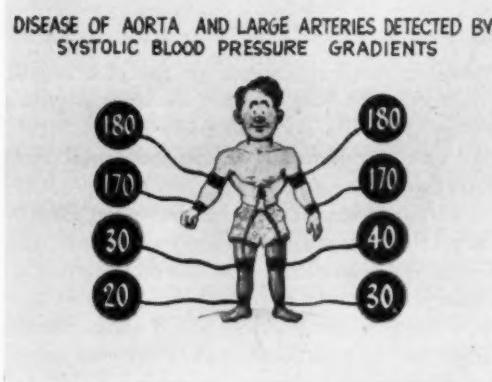


Fig. 9. The systolic blood pressure gradients aid in determining the lowest site for amputation.

The most common surgical procedure employed for the treatment of peripheral vascular disease is the lumbar sympathectomy. Sympathectomy is indicated usually when there are strong neurogenic factors limiting blood flow, when minimal tissue atrophy has occurred, especially when these changes are progressive, and when excessive sweating is present. Sympa-

thectomy is contra-indicated in the presence of marked cerebral or cardiac disease, when peripheral blood flow is uninfluenced by removal of sympathetic vasomotor tone (posterior tibial nerve block), when extensive irreversible tissue damage has occurred, or when hemometakinesia is demonstrable. When advising sympathectomy one must keep in mind the undesirable side effects which occur occasionally. These are: post-operative neuritis which may be severe and occurs in about 20 percent of patients, disappearing usually in 4 to 5 months, failure of ejaculation which occurs when the first lumbar ganglia are interrupted bilaterally, and hemometakinesia which occurs rarely. The primary beneficial effect of a sympathectomy is an increased circulation to the skin and digits as revealed by increases in skin temperature and blood flow. The improvement of nutrition to the tissues aids in the healing of skin ulcers and is evidenced by increased rate of growth of tissues especially of toenails (Fig. 10). Medical treatment after sympathectomy is indicated and includes the use of alcohol orally which produces a vasodilatation by a direct action on the blood vessel walls. Tobacco, after sympathectomy, no longer decreases blood flow and thus need not be withheld as far as the diseased limb is concerned. Body heating after sympathectomy is ineffective as a vasodilator as its effect is mediated through the sympathetic nervous system.



Fig. 10. Increased growth of toe nails after sympathectomy in a patient with thromboangiitis obliterans. Essentially no growth 6 months before sympathectomy, 5 mm. growth 6 months after surgery.

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## THE NEPHROTIC SYNDROME

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Few situations in medicine present greater complexities in handling than the nephrotic syndrome. Almost every practitioner, at least one or more times in his career, is beset with the problem of the edematous child. With this thought in mind, clarification of the syndrome is undertaken, with a view towards defining its subdivisions from the clinical, laboratory, and pathological standpoints.

I. Definition — In a recent comprehensive study by Barness, Moll, Janeway (1) the nephrotic syndrome was sub-divided into the nephrotic stage of chronic glomerulonephritis, and lipid nephrosis. The former represented a form of the nephrotic syndrome without known antecedent history of acute glomerulonephritis or pyogenic infection, with persistent proteinuria and edema as the presenting signs and other evidence of chronic glomerulonephritis initially obscured, but ultimately becoming manifest. The latter was described as a form of the nephrotic syndrome manifested by edema, proteinuria, lipemia, essentially normal blood pressure and little, if any, hematuria or nitrogen retention. Both are characterized by a chronic course with exacerbations, remissions and in many instances eventual recovery.

Rosenblum, Lander, and Fisher (2) have remarked that the majority of their cases originally diagnosed as pure lipid nephrosis were reclassified as chronic glomerulonephritis after observation over a long period.

The term nephrosis is used to denote a disorder in which albuminuria, hypoproteinemia and edema are the dominant clinical features, but without evidence of progressive renal insufficiency. It is thought that transient hematuria, hypertension or azotemia are not inconsistent with the diagnosis of nephrosis. Ad-dis (3), on the other hand, states that nephrosis is not really a diagnosis in the full sense of the word, but only gives a name to symptoms that appear suddenly from nowhere without any

history of development. He considers the combination of edema, cylindruria, the fatty infiltration of the tubule cells, the lipemia, and the proteinuria to be the nephrotic syndrome, but for the sake of treatment classifies all of these patients as being in the degenerative stage of glomerulonephritis.

II. Age, Sex and Race Incidence — Block, Jackson (4) in a study of forty (40) children with lipid nephrosis, list twenty-six (26) boys and fourteen (14) girls. Of the forty, fourteen were six years of age or older at the onset of illness. The youngest was fifteen months, the oldest fifteen years.

Galan (5) reports that of eighty-four (84) patients with the nephrotic syndrome, the majority were two to four years of age, with the youngest being ten months of age, and the number of white cases was markedly greater than those in negroes. There was a slight predominance of male cases.

III. Character of Disease — Barness, Moll and Janeway (1) report the onset in almost all instances of lipid nephrosis and the nephrotic stage of nephritis was insidious. First symptoms noted were either edema around the eyes, rapid increase in weight, or an upper respiratory infection for two or three days prior to the appearance of edema.

Block, Jackson, et al (4) considered the diagnosis of lipid nephrosis established when the following criteria were present: edema, proteinuria, good renal concentration ability, high blood fats and low blood protein with marked decrease in albumin, absence of retinopathy, absence of persistent azotemia, absence of persistent hypertension, no hematuria other than an occasional finding of about 10 red cells per high-powered field in a centrifuged freshly voided specimen. Nutritional history had no apparent relationship to the appearance of nephrosis. Breast feeding in infancy was not a significant factor. It was noted that by far the majority of children had received one or more immunizations, or had one or more of the common communicable diseases, or both, before they became ill with nephrosis. An upper respira-

A Review of Current Literature and a Survey of Cases at Denver Children's Hospital from 1940 through 1950.

\*Work on paper done at Children's Hospital, Denver, Colorado. Presented as Resident-Intern Merit Award paper for 1951 to Kansas City Southwest Clinical Society, Kansas City, Missouri, October, 1951.

tory infection preceded the illness as often as not, but regardless of the relationship to onset, these were responsible for recurrences in children in whom the disease had been inactive for various periods of time. Nine children of the forty studied had some allergic manifestation.

Hermaturia in the nephrotic syndrome has been exceptional, but repeated examinations of the urine disclose showers of red cells from time to time in nearly every patient. Even in lipoid nephrosis, where absence of hematuria is regarded as essential to the diagnosis, red cells are occasionally found, according to Bradley and Tyson (6). On the whole, kidney function appears to be excellent. Many writers have stressed the normality of concentrating power, phenolsulfonphthalein excretion and urea clearance, and the absence of nitrogen retention, acidosis and other evidences of renal insufficiency. This is not surprising since there is little or no destruction of glomeruli, the renal vascular system is relatively undisturbed, and blood continues to perfuse renal tissue normally. However, renal insufficiency develops sooner or later in most cases of the nephrotic syndrome in which progressive renal damage occurs, as in the course of chronic diffuse glomerulonephritis, intercapillary glomerulosclerosis, and amyloidosis. On the other hand, in children with lipoid nephrosis, filtration rate and urea clearance may be increased markedly.

Even after prolonged illness these processes may be reversed in many patients, with every trace of the disorder disappearing and the kidneys returning to normal. In others, however, renal insufficiency may finally ensue as nephrons disappear and the glomerular filtration beds shrink. In this process the nephrotic syndrome clears. Proteinuria is less marked and may ultimately cease altogether, apparently as a result of the obliteration of defective glomeruli and the diminution in the available filtration surface through which protein may escape from the blood. As protein loss diminishes, the plasma protein concentration rises and peripheral edema regresses. Addis (3) interprets this as the transition from the degenerative stage of glomerulonephritis to the terminal stage.

Concerning edema, the distribution is governed by gravity and tissue tension. There is

a predilection for the eyelids, particularly the lower lids, which may be attributed to the low pressure and the high distensibility of the skin in these areas. The genitalia and loose abdominal wall present similar characteristics. Failure of the lymphatic drainage when the eyelids are motionless and not blinking, as during sleep and recumbency, explains the tendency for edema fluid to accumulate about the eyelids during the night. Pleural effusion, ascites, acute pulmonary edema, localized edema of the glottis, and edema of the gastrointestinal tract may be encountered.

Even in the presence of overwhelming infection such as pneumococcal peritonitis, a nephrotic may show normal white cell counts. This is probably another manifestation of the diminished resistance to infection that these patients exhibit.

Schwartz, Kohn and Weiner (7) commented on the original use of the term, lipoid nephrosis, by Muller to distinguish the purely degenerative type of renal lesion from the inflammatory type, and mentioned its characteristically insidious onset. They made such a diagnosis in only forty children in over twenty years of observation, but in that same period observed over 400 children with typical symptoms of acute or chronic glomerulonephritis. They also noted, after prolonged observation, that several of these patients had distinct rises in blood pressure during early puberty and that Addis counts also revealed increased red cell counts in four cases and increased urinary casts in two cases.

Concerning calcium metabolism in nephrosis, Emerson and Beckman (8) reported the correlation of Roentgen changes in the bones with alterations in calcium metabolism in nephrotic children. The carpal and shafts of the phalanges, metacarpals, radius and ulna showed diffused rarefaction, but the epiphyseal lines were as dense as those of a normal subject. Most nephrotic children studied had normal growth rates. Low serum calcium concentrations, extremely low urinary calcium excretion, and abnormally low calcium retention were noted. The authors concluded that formation of bone matrix was normal, but calcification of shafts was incomplete because of deficient supply of calcium, and a general calcium deficit was present with epiphyses of growing bone being favored with regard to

calcium distribution at the expense of the shafts.

Rosenblum, Lander and Popper (9) report one case of clinically pure lipoid nephrosis who died from homologous serum jaundice during a period of remission. This child at various times received intravenous infusions of concentrated pooled human plasma and salt-poor human albumin with clinical improvement. Autopsy revealed liver findings of fulminant infectious hepatitis. Kidneys revealed findings consistent with lipoid nephrosis.

IV. Course and Prognosis — Janeway (10) has stated that in the group of children showing persistent hypertension, hematuria, nitrogen retention, the prognosis is poor and death due to renal or cardiac failure is apt to occur in a few years. In the group with so-called pure nephrosis, symptomatic recovery with or without persistent albuminuria occurs in a high proportion of cases who survive the period of several months to several years during which remissions and exacerbations of the edema continue. Infection is the predominant cause of death in the latter group, thus indicating prompt treatment of any febrile illness. Overzealous treatment is the second most important cause of death, reactions to intravenous injections, unwise tonsillectomies or other surgical procedures, or infections acquired in unnecessarily prolonged periods of hospitalization being incriminated.

Barness, Moll and Janeway (1), in the 208 cases studied, have noted that the so-called spontaneous remissions are common within two months of onset of the illness. As the disease progresses, spontaneous remissions apparently recur less frequently for any individual patient. Because of the difficulty in distinguishing between the nephrotic stage of chronic glomerulonephritis and lipoid nephrosis, and because lipoid nephrosis appears to be relatively common in childhood, all patients with edema, lipemia, low serum protein and albumin, and albuminuria should be treated with a reasonable degree of optimism, according to these authors. The disease will run a chronic course with remissions and exacerbations, but ultimate recovery will occur in many children, particularly if protected from infection, which has been the major cause of death in the past. Those patients who develop frank evidence of glomerular involvement, however, us-

ually assume the poor prognosis of chronic nephritis.

Aldrich states that before chemotherapy, 88% of patients with nephrosis, who developed bacteremia and peritonitis or other severe infections, died. After chemotherapy, the mortality from severe infections dropped to about 40%.

The series of 34 children with lipemic nephrosis observed over a 12 year period by Heymann and Startzman (11) included 10 deaths. Three deaths occurred less than six weeks after onset. Out of 12 patients reexamined, of the series of 34 patients, from 1 to 17 years after their discharge from the hospital, 8 were thought to be definitely recovered and three probably recovered. Of the 34, ten or thirty percent died of intercurrent infection. They feel justified in prognosticating a better than 50% chance for recovery. The cause of death in lipemic nephrosis is either an intercurrent infection or terminal chronic nephritis, the latter occurring in their experience in approximately 8% of cases.

Hypo-amino-acidemia in children with nephrotic crises has been commented on by Farr and MacFadyen (12). The nephrotic child is apparently subject to an acute disturbance of plasma amino acid regulation which begins without clinical warning and appears to be self limited when not complicated by infection. This acute illness, termed "nephrotic crisis", is accompanied by a sharp and sudden fall in the amino acid content of the plasma. Abdominal pain with fever is often complained of, usually localized to one part of the abdomen. Gaseous distention, pallor, prostration, listlessness, nausea, occasional vomiting and mild diarrhea may be present. Onset is rather sudden and recovery may be as rapid as onset. Leucocytosis is always present during an attack. Changes in the concentration of plasma amino acid occur as abruptly as the clinical condition of the patient changes. The nephrotic crisis apparently has no relation to ordinary infections, it is not cyclic in occurrence and bears no evident relation to any environmental factors. Changes in the blood amino acids seemed to parallel the clinical course of the acute illness.

The literature, at one time or another, reveals accounts of practically every type of infection having a beneficial effect on the

course of nephrosis. Measles is apparently the most outstanding and most consistent in its effect. Blumberg and Cassady (13) have noted that improvement following measles in patients in the nephrotic stage of chronic glomerulonephritis is neither as marked or as lasting as that in lipid nephrosis. They believe that the advent of chemotherapy and antibiotics may make measles a more practical and safer tool against nephrosis. In nephrotic patients responding ideally to measles, onset of disappearance of edema may be noted one to three days after rash becomes apparent. The urine may become albumin-free one to twenty days after onset of rash. Blood chemistries may become entirely normal. Meizlik and Carpenter (14) believe that possibly more favorable results may be obtained if measles is contracted in the early stages of nephrosis. Rosenblum, Lander and Fisher (2) have been impressed with the remarkable response to measles in edematous cases and have noted the trend toward higher protein levels after measles in both the albumin and globulin fractions. Many workers, however, question the wisdom of deliberately exposing edematous nephrotic patients to measles because of the dangers involved, despite available chemotherapy and antibiotics.

V. Treatment — It seems appropriate to comment that were any single therapeutic agent or combination of therapeutic agents effective in the treatment of the nephrotic syndrome, the literature would not present the myriad accounts of therapeutic measures tested that one encounters. Barness, Moll and Janeway (1) have recorded 64 various methods used for the 208 patients in their series. The large number suggests that few have been good enough to last. The removal of all foci of infection at an appropriate time is recommended. Cyclopropane is considered the anesthetic of choice in the presence of renal damage. Paracentesis can be utilized repeatedly for relief of discomfort, and is often more effective late in the disease. This is thought to be due to the thinness of the abdominal wall late in the disease and the fact that fluid collects more easily in the abdominal cavity than in other parts of the body. These authors suggest ambulation as long as the edema will permit. They consider paracentesis the simplest method of removing extra-cellular fluid

if ascites embarrasses eating, breathing, or getting about. They advised keeping the patient at home or in a sheltered environment as much as possible, since long hospitalization exposes to more infection. Moderation in the struggle to eliminate edema is advised.

Block, Jackson, et al (4) have observed that some of the children who died in their series received very intensive treatment with large amounts of either blood, plasma or sucrose infusions and have considered the possibility that actual harm might have been done to the kidneys by these measures. They considered diuretics useful to give relief to the severely edematous child and felt that salt free albumin was probably the most effective of these. They were hesitant to use sucrose, at least in such quantities as to bring about a sudden rapid diuresis, because of the danger of resultant circulatory collapse. Periods of sudden change in edema are critical times for the nephrotic child, and therapeutic procedures at such time should be performed with much care. They suggest that any form of treatment is most effective when the patient is treated very shortly after the onset of first symptoms. In their opinion any child with edema and proteinuria should be hospitalized at once for diagnosis and treatment if nephrosis is present.

Gottfried, Steinman, and Kramer (15) recommend a high protein and salt poor diet, giving 3 to 6 grams of protein per kilogram of ideal body weight and a maximum of 1½ gms. of sodium chloride per day. Ferrous sulfate usually had little effect on the secondary anemia encountered in these patients. Calcium lactate by mouth was also without effect on the hypocalcemia.

Heymann and Startzman (11) are hesitant about the use of mercurial compounds as diuretics, and if used at all recommend that they be given intramuscularly only, since they observed two deaths following the intravenous use of mercurials in a 1:10 saline dilution. Tyson (16) reported that in repeated injections of mercurial diuretics in cardiacs, the only five reactions reported occurred in patients with the nephrotic syndrome.

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This is the first section of a three part article. The second section of this article will appear in the December, 1953 issue.

# PHOENIX Clinical CLUB

## MASSACHUSETTS GENERAL HOSPITAL CASE RECORD NO. 38141

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A forty-eight-year-old woman was admitted to the hospital because of chills and fever.

For one month prior to entry the patient had noted tiredness and anorexia. Three days prior to admission she developed a pounding frontal headache and was noted to have a low-grade fever. The day before entry she had a shaking chill followed by a temperature of 104 F., severe malaise, headaches and a vague ache in the muscles.

The menopause had occurred two years before admission, but one month prior to entry she had had an episode of vaginal bleeding of a few days' duration, with irregular vaginal spotting since that time; she had taken stilbestrol daily because of hot flashes from six months until ten days prior to entry. Her father and one sister died of tuberculosis, and a brother died of Hodgkin's disease.

The temperature was 102 F., the pulse 100 and the respirations 20. The blood pressure was 150 systolic, 70 diastolic.

Physical examination was negative except for slight but definite tenderness on deep palpation in the right flank.

The urine had a specific gravity of 1.012 and gave a two plus reaction for albumin; the sediment was loaded with clumps of blood cells. Cultures of the urine grew abundant Escherichia coli. Examination of the blood showed a white-cell count of 16,000, with 77 per cent neutrophils and a hemoglobin of 13.2 gm. A nonprotein nitrogen was 16 mg. per 100 cc. Roentgenograms of the chest showed some prominence of the left side of the heart shadow; the heart did not appear to be enlarged and the lung fields were clear. Vaginal smears were doubtful for malignant cells.

Treatment with sulfadiazine resulted in a prompt subsidence of the symptoms and clear-

ing of the urine. A dilatation and curettage was performed; the pathological report was atrophic endometrium. An intravenous pyelogram performed a few days before discharge was negative. She was discharged on the twelfth day.

**SECOND ADMISSION** (three years later). In the interval the patient had felt well; there had been no further vaginal bleeding. Two weeks before admission she noted that she tired easily. One week prior to entry she began to note chilly sensations and the following day she had a frank shaking chill. Her physician found 10 to 20 white cells in the urine and prescribed a triple-sulfonamide preparation. The urine became free of pus cells on this therapy but she developed headache, vague generalized backache, profuse sweats, chilly sensations, paroxysms of fever up to 102 F., and mild shortness of breath on exertion, especially when the temperature was raised. There had been no cough, chest pain or urinary symptoms.

Physical examination revealed a middle-aged woman who did not appear ill. The neck veins were full. The lungs were clear. The heart was normal in size and the heart sounds per se were normal; over a clearly defined area from the xiphoid to the apex there was a harsh loud adventitious sound which was variable in timing but was mostly systolic. This sound was heard only when she was in the supine position, disappearing when she sat up, and its intensity was diminished by deep inspiration. Examinations of the abdomen and pelvis were normal. One Heberden node was present on the left little finger.

The temperature was 102 F., the pulse 100 and the respirations 20. The blood pressure was 140 systolic, 70 diastolic.

A urine of specific gravity 1.012 was normal. Examination of the blood showed a white-cell count of 6000, with a normal differential, and a hemoglobin of 11.4 gm. The erythrocyte sedimentation rate was 20 mm. in 60 minutes. The nonprotein nitrogen was 28 mg. per 100 cc., the serum chloride 92 milliequiv. per liter and a fasting blood sugar 116 mg. per 100 cc. Agglutination tests for typhoid and undulant

fever were negative. A blood Hinton test was negative. Roentgenograms and fluoroscopic examination showed marked enlargement of the heart without characteristic configuration. The amplitude of the pulsations of the heart was diminished; there was no appreciable change in the size of the heart on the Valsalva and Mueller tests. There was some prominence of the superior vena cava and azygos veins. The lung fields were clear. An electrocardiogram showed normal rhythm at a rate of 100 a PR interval of 0.16 second, a QRS interval of 0.08 second and a tendency to low voltage. The T waves were upright in Leads 1 and AVL and flat in Leads 2, 3, AVF, V1, V2, V3, V4, V5, and V6.

In the hospital the patient continued to have a temperature ranging from 100 to 101 F., with spikes up to 103 F. She had a few brief episodes of acute dyspnea usually associated with a rise in temperature; the longest of these lasted four hours. Digitalis and Mercuhydrin had no significant effect; Chloromycetin also had no noticeable effect and had to be discontinued after four days because of severe nausea and vomiting. The physical findings remained unchanged, with the addition of the following: blood-pressure dropped 10 mm., with deep inspiration; suggestion of gallop rhythm at the apex and of a paradoxical pulse; heart sounds more distant than at admission; neck veins pulsating at a 45 degree angle. On the seventh day the white cell count was 5400, with a normal differential, and an electrocardiogram was unchanged. On the ninth day an operation was performed.

#### DR. HOWARD C. LAWRENCE:

This woman's initial hospital admission was for the diagnosis and care of an acute febrile illness characterized by chills, fever, severe malaise, and headaches. Her physical examination was negative except for tenderness in the right flank. The laboratory examinations indicated definite urinary tract infection. Sulfadiazine therapy promptly eliminated the infection. Because of concern over the report made on vaginal smears, a D & C was carried out and demonstrated atrophic endometrium. I feel that this initial sickness had no direct relation to the ensuing difficulties other than that the second illness was initiated by an infection in the urinary tract.

It is noteworthy that the patient's health

was good in the three year interval between the two hospitalizations. Her second illness started two weeks before admission with an ease to fatigue. One week prior to entry she began to note chilly sensations and the following day she had a frank shaking chill. Pus cells were found in the urine and a triple sulfa preparation was administered. The urinary tract infection apparently cleared but she developed headache, generalized backache, profuse sweats, chilly sensations, paroxysms of fever up to 102 and mild shortness of breath on exertion. There was no cough, no chest pain.

Her physical examination revealed full neck veins, clear lung fields. The heart was reported as being normal in size and the heart sounds were normal. A loud adventitious sound was heard in an area between the xiphoid and the apex which was variable in timing but was mostly systolic. This was heard only when the patient was in the supine position. Its intensity was diminished by deep inspiration. The blood pressure was 140/70 (compared with a previously reported pressure of 150/70), temperature 102, pulse 100, respirations 20. The urine examination was normal. The blood count was essentially normal except for a somewhat low hemoglobin value of 11.4 gm. The sedimentation rate was definitely elevated. The NPN was normal, as was a fasting blood sugar. The serum chloride was a low normal. Contrary to the physical findings the roentgenograms and fluoroscopic examinations showed a marked enlargement of the heart without characteristic configuration. The amplitude of the pulsations of the heart was diminished; there was no appreciable change in the size of the heart on the Valsalva and Mueller maneuvers. There was some prominence of the superior vena cava and the azygos veins. The QRX complex demonstrated a tendency to low voltage; the T waves were flat in the majority of leads.

The patient's course was a febrile one with spikes of fever to 103. There were some episodes of dyspnea. Digitalis, Mercuhydrin, and Chloromycetin therapy were apparently ineffective and were discontinued. Additional findings included: a drop of 10 mm. in blood pressure with deep inspiration; suggestion of gallop rhythm at the apex and of a paradoxical pulse; the heart sounds were more distant than at admission; the neck veins pulsated at a 45

degree angle.

It seems to me that this woman most probably had a pericarditis which complicated a urinary tract infection. Determination as to whether the pericarditis was one with effusion or whether there was a chronic constrictive fibrinous pericarditis seems in order. The differential diagnosis of cardiac hypertrophy and dilatation also bears consideration.

Pericarditis is probably rarely a primary disease. The most frequent pathologic conditions with which it is associated are 1) rheumatic fever, 2) pneumococcal infections, 3) coronary thrombosis with myocardial infarction, 4) chronic nephritis with uremia 5) pulmonary TB and 6) miscellaneous bacterial infections. Since pericarditis is usually secondary to disease of other organs, the symptoms are usually related to the primary disease during the early part of the illness. Our patient had symptoms definitely referable to a urinary tract infection. Acute fibrinous pericarditis is usually painless; when pain occurs it is usually because the pleura is involved. Auscultation characteristically reveals a to-and-fro sound corresponding to systole and diastole. The rub is most frequently heard over the 4th and 5th intercostal spaces close to the sternum. Change of position frequently will alter the characteristics of the rub. The "loud harsh adventitious sound" described in the protocol certainly isn't a textbook picture of a pericardial friction rub, but I interpret it to be one, nonetheless.

Acute fibrinous pericarditis may subside or progress to be complicated by effusion. This process usually has an insidious and somewhat gradual onset. It frequently is unassociated with pain. Dyspnea is rather characteristic. Distention of the neck veins is usually found. Palpation usually reveals a gradually vanishing apical pulse. Percussion demonstrates a widening of the relative dullness in the first and second interspaces to the right and left of the sternum. Variance in this area of dullness in the recumbent and erect positions is significant. X-ray evidence of enlargement of the cardiac shadow with loss of normal chamber contour is suggestive of effusion. Diminished cardiac pulsations as seen on fluoroscopy is rather characteristic. With large effusions the pear-shaped outline is usually seen.

The pericarditis associated with rheumatic

heart disease may be painless, characteristically has a friction rub, and usually has some degree of effusion. It seems unlikely that such a diagnosis should be seriously entertained, however, because of the patient's age and the absence of other signs of a rheumatic state including evidences of valvular damage.

Chronic constrictive pericarditis is believed to be usually the result of a tuberculous infection. This patient's father and one sister died of tuberculosis so we can safely assume that the patient had had contacts. But no evidences of pulmonary or other foci of tuberculosis are suggested in the physical findings or the x-ray reports. Authorities feel that the tuberculous involvement of the pericardium occurs by direct extension from mediastinal lymph nodes. This sequence of events cannot be entirely ruled out in our current discussion.

The three outstanding complaints associated with chronic constrictive pericarditis are shortness of breath, swelling of the legs and abdominal swelling. Our patient had only the first of these three. Hepatomegaly, ascites, and signs of pleural fluid are seen in over half the cases. Our patient had none of these findings. Pulsus paradoxus and a narrow pulse pressure may or may not be present in the chronic constrictive pericarditis. Rarely is a friction rub present. In this disease the heart may be normal in size, but, despite a common belief, may equally often be found to be moderately enlarged or rarely greatly enlarged. About half of the cases have demonstrable pericardial calcifications in the x-ray. The EKG commonly shows flattening or inversion of the T waves and low voltage is frequently observed. Our patient had a pulsus paradoxus, no significant change in pulse pressure, a definite friction rub, and marked enlargement of the cardiac shadow on x-ray. No pericardial calcifications were reported. The EKG findings in our patient were compatible with a diagnosis of chronic constrictive pericarditis.

Differentiation must be made between pericarditis with effusion and cardiac hypertrophy and dilatation. Osler's summary of the differential diagnosis is quoted:

- (1) The character of the apical impulse in dilation, particularly in thin chested people, is comonly visible and wavy.
- (2) The shock of the cardiac sound is

more distinctly palpable in dilatation.

(3) The area of dullness in dilatation rarely has a triangular form; nor does it, except in cases of mitral stenosis, reach so high along the left sternal margin or so low in the fifth and sixth interspaces without visible or palpable impulse. Dullness, shifting with change of position, speaks strongly for effusion.

(4) In dilatation, the heart sounds are clearer, often sharp or fetal in character; gallop rhythm is common, whereas in effusion the sounds are distant and muffled.

(5) Rarely in dilatation is the distention sufficient to compress the lung and produce the tympanitic note in the axillary region, or flatness behind.

(6) The x-ray picture may be very definite and unlike any form of dilatation or hypertrophy of the heart."

The interpretation of the final sentence in the protocol proves to be difficult. It reads "on the ninth day an operation was performed". If the patient had a pericarditis with effusion it would seem that a pericardial tap would have been done. Was the intended tap referred to as an "operation"?

In a purulent effusion repeated pericardial taps may prove ineffective and a surgical drainage is indicated. If this was the proposed surgery, information about the preceding taps has apparently been withheld. Finally, did our patient have chronic constrictive pericarditis and was the proposed surgery to be the excision of the offending pericardium?

It seems unlikely that the patient would be taken to surgery for excision of a constricting pericardium on the basis of the findings presented.

There are reported cases of extensive pericardial effusions resulting from primary malignancy of the pericardium; a larger number report effusions resulting from metastatic implants in the pericardium. Cases of primary amyloidosis involving the heart whose symptoms and findings closely resemble those of chronic constrictive pericarditis are to be found in the literature.

**CONCLUSIONS:** I shall elect to interpret the operation mentioned as being a pericardial tap rather than a surgical procedure. My diagnosis is tuberculous pericarditis with effusion. A second choice, if the patient actually was

subjected to intrathoracic surgery, would be chronic constrictive pericarditis in which there was an associated cardiac enlargement.

#### DIFFERENTIAL DIAGNOSIS

DR. EARLE M. CHAPMAN: "Adventitious." I had to go to the dictionary to refresh my memory about this word; it is defined as "added extrinsically, not essentially inherent, acquired, accidental, casual". This word, which is used in many ways, is the most important choice in this whole physical examination.

I should like first to look at the x-ray films.

DR. STANLEY M. WYMAN: The first two films, taken during the original admission to the hospital, show no evidence of intrinsic pulmonary disease. The heart shadow may be a little prominent in the left ventricular portion, but that is not very striking. The aorta is not remarkable. The bones appear well preserved, and I see no other evidence of disease. The films taken in the second admission demonstrate a great change in the size of the central heart shadow, which is now rather rounded and shows loss of normal geographic contours. According to the fluoroscopist there was definite diminution of pulsation of the margins of this shadow. There is no evidence of fluid in the pleural spaces and nothing that I can recognize in the lungs themselves. The superior vena cava and azygos vein are more prominent than usual and are certainly more prominent than on the original examination.

DR. CHAPMAN: Is there any evidence of calcification around the heart in any of those films, especially along the diaphragmatic surface?

DR. WYMAN: No; none that I can see — and according to the fluoroscopist's report it was not seen at fluoroscopy, which is the best time to make this observation.

DR. CHAMPAN: Isn't it a medical aphorism that the absence of pulsation in the heart with clear lung fields is diagnostic of pericardial effusion?

DR. WYMAN: I think that is the most probable explanation for this situation.

The films taken from the pylegrom show no significant intrinsic disease that I can recognize. The left kidney may be rotated on its long axis.

DR. CHAPMAN: Do you see any calcification in the region of the kidney?

DR. WYMAN: No; there is no evidence of renal or adrenal calcification. I am not impressed with the pyelogram.

DR. CHAPMAN: And these little areas in the lung out here — you do not interpret them as an early lesion of tuberculosis on the early film.

DR. WYMAN: I think it may be a tiny scar but not a significant one.

DR. CHAPMAN: Does it show on the film?

DR. WYMAN: Perhaps, but at any rate I would not attach any significance to it. It has not changed or become worse.

DR. CHAPMAN: In reconstructing the situation I can only link up the first hospital entry with the entry three years later in so far as one has to suspect the possibility of a tuberculous lesion in the kidney. Since the patient had blood in the urine and evidence of infection, which evidently responded to sulfadiazine, the supposition is that there was a bacterial infection from which she recovered completely. The vaginal bleeding at the time, I assume, was due to stilbestrol therapy. I cannot link the first entry with the second.

When I come to the next problem of her departure from health, it seems clear to me, and the x-ray films confirm it, that she had pericardial effusion: pericarditis with effusion can be caused by a number of things. The one thing that I was rather surprised by was that there was not a better clinical description of the state of the venous pressure — only the remark that the veins were filled and pulsated at a 45 degree angle. It would have been helpful to know more about this. The other things I assume are absence of enlargement of the liver and spleen, and of ascites.

DR. REED HARWOOD: At the time she was operated on, she had no ascites or, as far as I could make out, enlargement of the liver or spleen.

DR. CHAPMAN: A total protein was not included at that time; I take it that no total protein was done on the patient before operation.

I am faced with the diagnosis of a rather acute process with pericardial effusion and a spiking fever; what are the possibilities? The most common basis is a tuberculous lesion; The next, rheumatic fever, and likewise the absence of a precordial pain and other signs do not fit with the patient's having had a

coronary thrombosis.

Subacute bacterial endocarditis also seems to be ruled out, although it would have been nice to have a blood culture from this patient.

DR. BENJAMIN CASTLEMAN: The blood culture showed no growth.

DR. CHAPMAN: That would tend to rule out acute bacterial invasion by the usual type of organism that causes pus formation.

Malignant tumors? I noted that there was Hodgkin's disease as well as tuberculosis in the family history; therefore one thinks of the possibility of this being a lymphoma in the lung root. In the description of the x-ray films it seemed that the left side of the heart was rather large; in your interpretation, Dr. Wyman, you mentioned no suggestion of nodes in the hilum.

DR. WYMAN: No; I do not see them.

DR. CHAPMAN: I do not either, so I shall discount lymphoblastoma.

Another condition that might cause this is disseminated lupus erythematosus, but there was no description of skin lesions or multiplicity of effusions in joints that would lead one to suspect this. There was one Heberden node in the little finger; that is a very tiny "red herring". Dr. Walter Bauer and Dr. William Clark described a pericarditis in 12 per cent of 62 cases of rheumatoid arthritis. I did some multiplying; that is seven and a half patients. Dr. Ropes, would you tell us how many patients in your series had pericardial effusion?

DR. MARION W. ROPES: The incidence of effusion was low — approximately 6 per cent. The incidence of pericarditis was very high, in our series and in another autopsy series going up to 44 per cent.

DR. CHAPMAN: Why did she have pericarditis with effusion and this appearance? One disease that can simulate this picture closely is mitral stenosis; I must mention that briefly. In mitral stenosis, the left-ventricular filling defect, — the impedance of filling of the left ventricle, — is due to the tight mitral valve; in chronic constrictive pericarditis, the insufficiency of filling of the left ventricle is on the basis of fibrosis about the left ventricle. I think it was Dr. White who reported in 1948 that fibrosis can involve the groove between the left auricle and the left ventricle. Of course, when the groove is decreased the

diastolic capacity of the ventricle is decreased, producing a high back or pulmonary pressure that can be measured by the catheter. The same results are obtained from catheter studies in this condition as are found in mitral stenosis. Were catheter studies done?

DR. CASTLEMAN: I do not believe so.

DR. CHAPMAN: I do not believe anything here suggests that she developed mitral stenosis between the ages of 48 and 51, but I must mention it in passing.

That brings me back to what I think is the most likely diagnosis — pericarditis with effusion. The "adventitous" sound I should call a friction rub.

The next test of the situation is: What was the operation and why was it done? It is significant that the electrocardiographic changes were consistent with pericarditis and in fact suggested an extension of the process into the superficial layer of the myocardium, not with true infarction of the myocardium. The patient was going downhill and I think had the signs of cardiac tamponade — Beck's classical triad: rising venous pressure, falling arterial pressure and a small quiet heart. In a way she had this. Dr. Edward D. Churchill and Dr. Souter probably would object to the phrase "a quiet heart"; Dr. Churchill says he almost never hears it. The neck veins finally become pulsating at an angle of 45 degrees and the heart sounds were more distant — the heart was not smaller but it was quieter, so she must have developed the picture of cardiac tamponade, which indicated an exploratory operation.

What studies would help to make the diagnosis? An angiogram might have helped. Was one done?

DR. CASTLEMAN: No.

DR. CHAPMAN: Where was the incision made and what was done? I suppose I should guess about that.

DR. CASTLEMAN: No.

DR. CHAPMAN: Well, let me; I would like to. The surgeons may have put a needle in, taken out some fluid and squirted in streptomycin. As I understand it, aspiration and pericardiectomy are new methods for diagnosis and treatment of pericarditis with effusion. They may have suspected that she was forming fibrosis and developing a chronic constrictive pericarditis, although there was no clinical history

of it; this exploration might have been designed to relieve the picture of cardiac tamponade due not only to fluid accumulation but to a rapidly developing fibrosis. This is supported, perhaps, by the electrocardiographic evidence. There are several approaches used in that operation; Blalock would make an incision in the fourth interspace and remove the fourth and fifth costal cartilages and really expose the heart so that the possibility of fibrous rings about the groove between the left auricle and ventricle as well as the right side could be explored. In their experience they have sometimes had to go back and do both sides. There is no evidence in the x-ray films to support this situation as Dr. Wyman tells us there is no calcification present. However, in the Massachusetts General Hospital cases, reported in 1948, only half had calcification visible by x-ray examination — chiefly along the diaphragmatic surface, was it not? That leads me to the final consideration of what was done. Was it decortication or just a decompression? I do not know.

It is possible that a Hodgkin node might have been in this picture, but I do not believe so. I am still going to make my first choice tuberculosis.

DR. CASTLEMAN: A needle was introduced below the xiphoid and driven posteriorly and superiorly into the pericardium; a large amount of thin amber-colored slightly bloody fluid was present; about 280 cc was withdrawn and replaced with about 180 cc. of air. That was the procedure that was done before the operation.

Dr. Harwood, would you tell us your thoughts about the patient before operation?

DR. HARWOOD: Dr. Chapman summed up the clinical situation very well. We had an acutely ill patient who was getting worse all the time. Dr. Conger Williams saw her with me. It was perfectly obvious that she had pericarditis with an effusion and cardiac tamponade. The onset was so abrupt that we thought there must be some acute infection — probably not tuberculous pericarditis, which I had always thought was rather slow in onset. We believed that we had ruled out a bacterial pericarditis because both the blood culture and white-cell count were normal and the pericardial fluid failed to show any bacteria. It was Dr. Williams' thought that she might have



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1. Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 10, Philadelphia, W. B. Saunders Company, 1951, pp. 103-104; 311; 332.

**SEARLE Research in the Service of Medicine**

virus pericarditis, and for that reason we gave her Chloromycetin. However, the Chloromycetin did not help. We believed we would lose the patient if we did not find out whether she had tuberculous pericarditis or not. It was with the idea of finding out that we agreed that a biopsy was justified.

#### CLINICAL DIAGNOSIS

Pericardial effusion; Tuberculous

**Dr. Chapman's Diagnosis**

Tuberculous pericarditis, with effusion

**Anatomical Diagnosis**

Tuberculous pericarditis

#### PATHOLOGICAL DIAGNOSIS

**DR. LAMAR SOUTTER:** The biopsy was simple to do, particularly after aspiration of fluid from the pericardium. The aspiration enabled us to estimate the thickness of the pericardium. Injection of air into the pericardium gave us a good outline of the heart. I wonder if Dr. Wyman would show the film that demonstrates this. The biopsy was performed through the fourth interspace anteriorly. This biopsy gave us an immediate diagnosis, with little hazard to the patient. By being able to establish the diagnosis, we could start treatment at once — a distinct advantage.

**DR. CASTLEMAN:** Could you say that the x-ray picture could not be due to metastatic carcinoma? Was that in the differential diagnosis?

**DR. HARWOOD:** We thought of that as a possibility but did not think the type of fever was consistent with it.

**DR. WYMAN:** I thought of that possibility but excluded it. In this film after air injection the margin of the pericardium on the inner aspect can be seen fairly well in several projections. There is a shaggy, irregular, frond-like appearance to the surface of the heart and to the pericardium itself. I do not see the characteristic nodules that I would expect to see if it were metastatic carcinoma.

**DR. CASTLEMAN:** The biopsy that Dr. Souter took confirmed Dr. Chapman's diagnosis of tuberculosis, following which she apparently received a large amount of streptomycin.

**DR. HARWOOD:** Following the operation she had two interesting findings: She developed pleurisy on both sides, with pain, friction rub and small amount of ascites. These were in-

terpreted as being due to a hematogenous spread of tuberculosis, although we had no proof of it. She was started on streptomycin and improved only slightly at first, as I recall. She had para-aminosalicylic acid, which she could not tolerate. Dr. Theodore Badger, whom we asked to see her, suggested that she be given the sodium salt of para-aminosalicylic acid; this she was able to take in full dosage. Her fever subsided and she began to recover. She was in the hospital for six months; at the end of five months her sedimentation rate was normal, but then she developed rheumatoid arthritis, so we were no longer able to get any information from this test. She was continued on the para-aminosalicylic acid for about ten months and had streptomycin for about seven months; she has had two short courses of it since then, and she is now completely off therapy of any kind, except for limited activity. She goes to work two or three hours, three or four times a week.



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## The PRESIDENT'S Page

### THE STATE OF HEALTH IN ARIZONA

All of us are vitally concerned with and interested in the public health problems of our state. Recognizing its obligation to the peoples of Arizona, your Association took early lead in making available the services of the medical profession. Possessed of special training, especially in the field of health, it comes well equipped effectively to assist in the development of a sound and practical solution to the present day complex situation. In a recent statement issued by Governor Pyle he had this to say and I quote in part:

"From the moment of the supreme court's action on Arizona's previous laws, there has been an acute problem of responsibility in determining who could best prepare legislation that would be both workable, and acceptable to the legislature and the courts. Very shortly after the magnitude of the problem began to be more clearly understood, a first and most significant step toward solution was taken when the Arizona Medical Association volunteered in early July to help in any way it could, and by July 31, had accepted my suggestion that it name a committee to be charged with direct responsibility for assisting in the work. Thus, during a long period in which it might have appeared that little or nothing was being done to overcome an apparent vacuum in public health work, actually a great deal of planning and organization was accomplished.

"It is expected that an intensive 90-day effort will result in the presentation to the second regular session of the 21st Legislature in January of a code that will be practical in its operation, entirely sufficient from a medical standpoint, and legally sound."

It continues to be both the policy and the profound belief of your Association that everyone of our members has the moral obligation and duty to donate the best of his services and abilities to problems concerning the health and welfare of Arizona citizens. As your President, I appointed a special committee on Health and Sanitation Code for the State of Arizona, headed by Dr. Reed D. Shupe of Phoenix; who will serve as chairman; Drs. William B. Steen of Tucson; Robert M. Matts of Yuma; Ernest A. Born of Prescott; Carl H. Gans of Morenci; Jesse D. Hamer and Preston T. Brown, both of Phoenix, and your President who will serve in an ex-officio capacity. Each member has agreed to assume this additional responsibility and it is my firm conviction that we may expect results for which we shall all be grateful.

EDWARD M. HAYDEN, M.D.  
President

# Editorial

## ARIZONA MEDICINE

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.

2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. (See MEDICAL WRITING by Morris Fishbein.)

3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.

4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.

5. Submit manuscript typewritten and double-spaced.

6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.

The Editor is always ready, willing, and happy to help in any way possible.

is crossing physician's desks in the various medical journals.

It has been intimated that much of the material in the scientific articles is mediocre and hardly worthy of printing. And to remedy this it has been suggested that if several of the states who are publishing the smaller journals would combine and issue one journal the quality of our journals would be improved. In addition to our state journals and the American Medical Association journal, every specialty has from two to a half dozen journals covering their own specific literature. To know something of the reading habits of the profession today give some clues to the answer.

A rather cursory oral poll of the readers of our own State Journal reveals some interesting facts. No one reads all the scientific articles. The specialists read the articles pertaining to their own specialty. Practically every one reads Dr. Guillermo Osler's column. Also the editorials and any news notes are quite generally read. Clinical pathological cases are quite popular. And this applies to programs of medical meetings as well as journals.

And it can be further added that no one reads any journal from cover to cover. Medicine has become so specialized and literature so extensive that the average practitioner does well to keep up to date on his own branch of practice. It might be added that the Table of Contents in a journal is one of the first things that is read. And then the doctor reads the summary of the scientific article that attracts his attention and then may read the whole article if he thinks he might find some new thoughts.

So with this information at hand why should we go on publishing scientific papers that are seldom read? Who profits by it? The writer believes that the answer to these two questions is the most important reason for publishing medical journals. And the answer is The Authors. When an essayist prepares a paper, he usually reviews the literature on the subject, at least enough to bring him up to date on all angles. Then he embodies his own opinion and experiences in his essay. Most editors

## TOO MANY MEDICAL JOURNALS?

This remark has been expressed a number of times recently by various commentators while reviewing the present status of publishing the voluminous amount of literature which

have a rule that a paper must be read before a controversial body before it can be published. When the author has fulfilled these postulates, he is usually quite well informed on his subject. The controversial body, whether it is the national, the state, the county, or the hospital staff extend him the courtesy of listening to his production. Few papers ever in our top journals are actually original. So if an author is to succeed in making an impression on his listeners and readers, he must have some interesting experiences, or some original opinions on his subject. And unless he does, or if he spends too much time rehashing facts and material that is too generally known he soon loses the interest of his listeners. Few speakers can maintain the interest of their listeners longer than 15 minutes. The supply of scientific papers has taken a beating the past ten years because our controversial bodies have had to spend so much time with the medical economic section of their programs.

But after all is said and done the writer believes that one of the best ways for medical groups to improve the medical knowledge of their members is to have them write scientific papers and have enough journals to publish them. And we will probably have medical journals as long as our advertisers continue to patronize us.

### **CLINICAL SESSION PLANNED FOR GENERAL PRACTITIONER**

CHICAGO — Have you made your plans to attend the seventh annual Clinical Session of the American Medical Association in St. Louis, December 1-4? More than 3,500 physicians will be there.

A program has been designed to give the general practitioner an opportunity to see and hear the latest developments in medicine. More than 150 papers by outstanding physicians will cover such topics as internal medicine, surgery, pediatrics, obstetrics and gynecology, tuberculosis and other diseases of the chest, cardio-vascular diseases, arthritis, dermatology, gastrointestinal diseases and neuropsychiatry.

One outstanding feature will be an exhibit symposium on the prevention of traffic accidents. This will include discussion of the responsibilities of the physician in telling his

patient when not to drive and what other precautions the physician should take in such special situations as the testing of the drinking driver and the care of the injured after an accident. Physicians and representatives from the National Safety Council and several police departments will participate in the symposium.

Other special features will include fracture demonstrations; problems of delivery with manikin demonstrations by leading obstetricians, and a diabetes exhibit and question-and-answer conference.

All scientific activities will be held in the Kiel Auditorium, where there are ample facilities for the lecture program. The Scientific Exhibit of about 80 displays will be correlated as far as possible with the clinical presentations. The Technical Exposition will consist of about 160 exhibits covering all types of office and medical practice needs.

Arrangements have been made for color television to be presented through the cooperation of Smith, Kline and French Laboratories. A motion picture program covering all the important problems which the general practitioner faces also will be presented. These will be shown continuously, with the authors present, whenever possible, to discuss their work.

The House of Delegates will meet in the Jefferson Hotel. Every physician should make an effort to attend one or more of these sessions.

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WHAT CAN BE DONE BY A GOOD CONTROL PROGRAM HAS BEEN REPEATEDLY DEMONSTRATED IN OTHER STATES. WISCONSIN'S DEATH RATE PER HUNDRED THOUSAND IS DOWN TO SEVEN, MINNESOTA'S IS ABOUT 8 AND NEBRASKA'S ABOUT 6. THESE STATES HAVE HAD CASE-FINDING AND TREATMENT PROGRAMS GOING ON FOR YEARS AND ARE NOW ARE THE POINT OF REAPING THEIR REWARD. THEIR SANATORIA ARE EITHER BEING CLOSED OR CONVERTED TO OTHER USES. THIS DOES NOT MEAN THEY ARE RELAXING THEIR CONTROL PROGRAM. THEIR CASE-FINDING IS RATHER BEING INTENSIFIED BECAUSE THE PEOPLE WANT IT. THE TAXPAYER HAS COME TO REALIZE THAT PREVENTION IS THE CHEAPER WAY. A SICK MAN OR WOMAN IS A CONSUMER AND NOT A PRODUCER. IT COSTS ABOUT \$14,000 PER INDIVIDUAL CASE OF TUBERCULOSIS. THIS MONEY HAS TO COME FROM THE INDIVIDUAL HIMSELF OR FROM THE TAXPAYER.

WE IN ARIZONA HAVE BEEN HANDICAPPED IN THAT SOME OF OUR LAY SPOKESMEN REFUSE TO RECOGNIZE THAT WE HAVE A PROBLEM AND HAVE BEEN SUCCESSFUL IN THWARTING THE EFFORTS OF THOSE WANTING TO DO SOMETHING ABOUT IT. HOWEVER, BRIGHT SPOTS ARE SHOWING THROUGH THE GLOOM. LAST YEAR THE GOVERNOR APPOINTED A FACT-FINDING COMMITTEE AND THEY DID AN EXCELLENT JOB. FROM THIS SHOULD COME A BASIS FOR LEGISLATIVE ACTION.

WE AS DOCTORS, ARE NOT WITHOUT BLAME. MANY OF US SIMPLY SHRUG OUR SHOULDERS AND LOOK UPON IT AS A HOPELESS SITUATION. INSTEAD WE SHOULD BE MORE DILIGENT IN REPORTING OUR CASES. WE, AT LEAST, SHOULD HAVE THE GOOD MANNERS TO REPORT ANY CASES UNDER OUR CARE TO THE LOCAL HEALTH DEPARTMENT.

AS DOCTORS, AND I HOPE AS GUARDIANS OF OUR PATIENT'S HEALTH, OUR POSITION AND OUR RECOMMENDATIONS ARE SIMPLE. WE WANT A UNIFORM CASE-FINDING PROGRAM THROUGH THE MEDIUM OF TUBERCULIN SKIN-TESTING AND X-RAYS. WE WANT AVAILABLE BEDS TO ISOLATE AND TREAT THE SICK PERSON WITH TUBERCULOSIS. AND ALONG WITH THIS GOES THE ALL IMPORTANT REHABILITATION PROGRAM. LET US GET THE PEOPLE AS EXCITED ABOUT TUBERCULOSIS AS THEY ARE ABOUT POLIO AND CANCER AND WE WILL HAVE LITTLE TROUBLE IN BRINGING OUR GOOD STATE IN LINE WITH THE BEST.

# TOPICS OF *Current Medical Interest*

## RX., DX., AND DRs.

By GUILLERMO OSLER, M.D.

Mrs. Secretary Oveta Culp Hobby (Health, Education and Welfare) has been associated with two topics of interest to Guillermo. . . . She voiced a fear and a warning of BIOLOGICAL (GERM) WARFARE in a radio interview. One can be fairly sure that the question was planted, and the answer was meant to needle the public interest in Civilian Defense plans. ARIZONA MEDICINE has been alerted on this subject for several years. . . . Secondly, the announcement of her Special Assistant for Health was as good a choice as anyone could possibly make, Dr. Chester Keefer of Boston. He is a physician, a practical scholar, and a terrific organizer. He was 'Mr. Penicillin' in its early days, and came off the hot spot with nothing but laurels and friends . . . Viva Oveta!

**Evidence of the evaluation of erythromycin has begun to trickle in.** Ricci of Rome, Italy, has found that both convalescent and 'healthy' diphtheria carriers can be sterilized by the third day, and usually sooner. . . . Toxoid and antiserum were used also, as indicated. . . . Erythromycin (Erythrocin) is still mightily expensive, however, and Terramycin, Aureomycin and Chloromyctin also haven't been reduced as fast as some of the preceding drugs.

Several years ago this column contained a favorable note concerning the use of PENICILLIN instead of silver nitrate to prevent OPHTHALMIA IN THE NEWBORN. It was suggested that laws and conventions might make acceptance difficult. . . . Now at least one nearby state (California) has made its use legal as an alternative. The state still supplies wax ampules of silver nitrate free, but you buys your own penicillin ointment. . . . The shared usage is quite a concession, since silver nitrate has been mandatory since 1915.

We recently had a conversation with a midwestern chest surgeon who HATES PNEUMOTHERAPY with a great passion. He stated, however, that he had seen a patient whose life had been saved by pneumoperitoneum. . . . After noting the incredulous and amazed expression of his audience, he went on to explain that the patient had been shot in the abdomen, the bullet had gone thru the PNP area and missed all vital organs, and the patient was actually benefitted since it let all the air out!

A Sunday supplement magazine, 'THIS WEEK', describes the search for a PLASMA SUBSTITUTE as practically ended. Quite a lot more certain about it than medical literature has been. . . . They quote a release by the Federal Civil Defense Administration and Department of Defense which states that artificial (synthetic) blood plasma holds THE NO. 1 SPOT for emergency treatment of hemorrhage and shock. Natural blood plasma is to be used only when the substitute is not available. . . . Whole blood is still needed for transfusion of sick and injured, and for defense reserve. . . . 'DEXTRAN' is the substitute plasma. It requires no typing. It is free from the hazard of virus contamination. It is inexpensive. It keeps indefinitely. Toxic reactions are rare.

Medical triumphs are of various sizes. The TRIUMPHS OF ANTIBIOTICS have been large and small, and have come in batches which sometimes obscure the details. . . . One can recall the treatment of pneumonia, the effect on bacterial endocarditis, etc. Occasionally we notice a defeat in which a whole procedure such as mastectomy is eliminated. . . . Now we have another similar surrender when Flippin declares that there is "no longer a place for tube or open drainage in the treatment of empyema." Medical therapy, using penicillin systemically and intrapleurally (and daily), usually suffices. If the lung fails to re-expand, enzymatic decortication may do the job. Surgical decortication is a last resort.

Readers of hospital journals and supply bulletins have seen the new TIP-PROOF INTRAVENOUS STAND. It is one of those things which first causes appreciation, then envy, then covetousness. . . . Actually, it isn't a conventional stand, with a spreading base at the floor (and a potentially tilting pair of bottles at the top.) It is an aluminum pole, weighing only 2½ pounds, adjustable to the height of the room, and attached to the floor and ceiling by rubber tips. . . . The bottles are hung from brackets at the desired height, and the advertisement shows a nurse trying unsuccessfully to knock the pole down with a baseball bat. . . . The name is 'Polecat I-V Stand', by Aloes, which fits (in a certain sense) our demand for descriptive names for products.

The darndest medical story we have seen in months is the SUBSTITUTION OF MEDICAL

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**STUDENTS FOR 'IRON LUNGS'** in the catastrophic polio epidemic in Copenhagen last year. Respirators were in very short supply, so bag-ventilation was used. . . . Danish and foreign specialists could not cope with the demand, so an appeal was made for help from senior medical students. In a month they needed to use juniors, who rose to the occasion very well. Finally, they used dental students. About 1,400 of the 1,700 medical students in Copenhagen assisted in the program. . . . The value of this enforced substitution of man for machines is hard to estimate but it makes a heroic tale.

The report by a chemical manufacturer that 'exchange type' RESINS may relieve migraine and epilepsy will require some further proof, but the theory is interesting. . . . It is said that artificially produced convulsions occur when there is an excess of sodium and a deficiency of potassium in the brain. ION exchange resins replace the sodium with potassium, when given orally, and have been followed by relief in patients with MIGRAINE headaches or EPILEPSY.

A physician from San Francisco was talking informally but (as you can see) not entirely off the record. San Francisco is known as the heart of the PNEUMOPERITONEUM country. . . . After apologizing because so many patients received PNP, he said that there were many indications for it, and several varieties. There is the common or Therapeutic type; there is the Disciplinary type; and there is the Diplomatic type. . . . Everyone had a good laugh, but in thinking it over later, it seemed that there could be even more subdivisions, — There might be the Accidental type, since Banyai started his first case while aiming at the pleural space. There could be the Spontaneous type, occurring in public speakers. . . . Then, too, think of the fame which would come to the man who first describes CONGENITAL PNEUMOPERITONEUM (indigenous, naturally, to Northern California).

One of the most fascinating recent public health stories is the preparation and conduct of the 1953 BOY SCOUT JAMBOREE in Orange County, California. The sanitary installations, food delivery and inspection, health examinations, swimming precautions, etc. are amazing. . . . Even more surprising than some of the usual Scout needs were those made necessary by 'camp followers'. Special toilet facilities had to be provided for 50,000 visitors, and they used portable chemical units (many of them borrowed from movie field-location equipment). . . . Another need was to prepare the surrounding towns for a huge influx of trailers, brought to the area by parents of Scouts. Extra sites had to be arranged, the local food

supplies and service had to be checked, etc. etc. . . . 'Be Prepared' is correct!

Dougherty and Frank of Salt Lake City have isolated a blood factor ("X") which stimulates the production of LYMPHOCYTES. It counteracts the leucocyte-killing action of the adrenals, and produces resistant 'stress' lymphocytes. . . . Maybe one can find out the relationship of high lymphocytes and resistance to tuberculosis; which comes first, the chicken or the egg. Is a lymphocytosis the result of a healing situation, or will an artificially high lymphocyte count result in a tendency to heal?

TIME magazine reports that a New Jersey drug researcher announced 'cures' for four diseases with imaginary names newly-coined by him. They included Hemingway's Syndrome, gastroposis, and Gallardia. . . . He received requests for samples from 80 of the 1,000 doctors to whom he wrote. . . . (It didn't say how the drugs worked tho. Too soon to expect results, I suppose).

Have you an idea that GALLSTONES can be dissolved in vivo? If so, maybe you've confused them with kidney stones. . . . Reports of success with certain types of kidney stones have been made, but not so with gallstones. NOT so. . . . There is no safe effective method, by mouth or otherwise, for dissolving gallstones. . . . This assurance comes from Dr. Walter Alvarez, Emeritus Consultant to the Mayo Clinic, and ACTIVE, INVOLUNTARY consultant to this column.

There are several reasons why we often quote DR. ALVAREZ. He is, for instance, good. He is also indubitably prolific. . . . His chores (which I'm sure he enjoys) include a daily syndicated newspaper column; editorship of 'Modern Medicine'; an editorship of a geriatric journal; et al. . . . (The word 'geriatrics' has come to be identified with 'practice among senior citizens', and this Osler does not intend to replace it with the cumbersome word 'gerontology', even tho it has a slightly different meaning).

Dr. Alvarez is also the author of 'Danger Signals', a book for the general public. It contains a glossary of medical terms, with an explanation for laymen, and describes the tip-offs to disturbances of various organs and systems.

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**BOOK REVIEWS**

**RESPIRATORY DISEASES AND ALLERGY.** New Method of Approach, by Josef S. Smul, M.D., published by Medical Library Company, New York, 1953, \$2.75.

This is a highly interesting little book of only 72 pages of reading material written by a man who believes and has the boldness to declare that some twenty-odd respiratory diseases have a common cause and yield to relatively simple and similar treatments. These diseases which include various types of sinusitis, rhinitis, bronchitis, he believes are due to allergy only and believes they should be considered as various syndromes of the one allergic disease which should be named 'respirallergy'.

The last half of the book is devoted to other infectious diseases of the respiratory system and to neoplastic diseases of the respiratory system. This can be read in a short evening and I think would prove interesting to almost every physician whether or not he agrees with the author.

R.L.F.

**FOOL'S HAVEN**

by

C. C. Cawley, Publishers, House of Edinboro,  
Boston, Massachusetts. \$2.75

This is a book written with a purpose in mind, the purpose being to bring the public the tragedies occasionally seen when some person of religious belief is denied much needed medical care. It briefly is the story of a young girl who because of her and her mother's religious beliefs was denied medical care and died of a ruptured appendix with resultant peritonitis. It is told by her fiance. For a book of its kind one must admit that it is fairly well done but it is the humble opinion of this reviewer that Mr. Cawley would have gained more friends for his cause had he treated it from the viewpoint of Christian common sense and tolerance rather than from the viewpoint of an agnostic which leaves one with the feeling that Mr. Cawley sneers at religion in general.

R.L.F.

**PHEOCHROMOCYTOMA AND THE GENERAL PRACTITIONER**

by

Joseph L. DeCourcy, M.D., and Cornelius B. DeCourcy, M.D.  
DeCourcy Clinic, Cincinnati 2, Ohio, Published 1952 by  
Barclay Newman.

In the last few years pheochromocytoma has become instead of a clinical rarity something which must be thought of and reckoned with in all cases of hypertension and particularly paroxysmal hypertension. It is called the

"great mimic" among hypertensive disorders. It is even more important in that, just as in cancer, an early diagnosis is essential to cure. This book is the most complete treatise on this important and interesting disease which this reviewer has seen. It is well organized, interestingly written and easily read. Its importance cannot be over-emphasized and it deserves a wide reading, not only among the general practitioners but among any physicians who have anything to do with hypertensive patients.

R.L.F.

**BONE MARROW ASPIRATION**

"The use of bone marrow examination as a diagnostic aid has gained extensive recognition in the past years. In some hospitals a marrow aspiration is almost a routine procedure for the patient admitted for diagnostic study."

Thus opens a discussion on "The Clinical Use of Bone Marrow Aspiration; Its Limitations and Methods," by Huntington and Howard, of Wilmington, Del., in the Delaware State Medical Journal, January, 1953.

The bone marrow study is a procedure requiring experience and time, but can be carried out in any well equipped clinical laboratory. Hospitalization is not necessary. Routine indiscriminate use is decried, and careful hematological and clinical studies should be carried before decision is reached regarding the indications for bone marrow study.

W.W.W.

**Are You Insured?**

For the medical practitioner, adequate insurance is a MUST. In this day of shrewd lawyers specializing in suits against doctors, of compensation minded juries, of a general public educated by propaganda to "get yours no matter who is hurt," it behooves doctors to look well to their insurance protection. Ordinary professional liability insurance is not enough and those who carry this frequently do not have sufficient coverage. If a judgment is granted to a plaintiff, usually the damages will be high, and the ordinary limits of \$5,000 to \$15,000 will not be sufficient protection. An article in two parts in the Rocky Mountain Medical Journal, January and February, 1953, by L. Allen Beck, C.P.C.U., of Denver, is a very excellent discussion on new risks, new types of insurance, and the steps to be taken to be certain that your insurance coverage is adequate.

W.W.W.

## Arizona Pharmaceutical Page

### MEDICAL COSTS

A report published in MEDICAL ECONOMICS and prepared by the Department of Commerce, gave the following breakdown on expenditures by the average family in 1951, for medical care:

Doctor's services .....	\$58.00
Hospitals .....	50.00
Drugs and Sundries .....	36.00
Dentists service .....	23.00
All other medical care .....	41.00

These figures total \$208.00, the amount spent by the average family of approximately 3½ persons, during 1951.

Of interest is the following statement, recently released from Washington:

**"DEATH VERSUS HEALTH:** Each year Americans spend more after death comes than on health care in hospitals. We spend \$700,000,000 a year with 25,000 funeral directors. There are a third as many mortuary colleges (24) as medical colleges (76). The casket manufacturers often charge many times the prices of surgical operations."

As you will note the "DEATH" figure averages out to approximately \$153.00 per family, three-fourths as much as the total spent for the various "HEALTH" services.

You are being constantly besieged by your patients who are complaining of the higher and higher costs being charged for their well-being. We thought you would be interested in a comparison, such as we have outlined, to bring home to your patients how little they are actually spending for the most important phase of their lives.

We, in pharmacy, know that the medications we are dispensing today do carry a much higher price tag than those our customers received in past years but we also know that those same patients are recovering much faster from the illnesses they encounter with the ultimate cost to them, not only in money but also in loss of time, being reduced to a very great extent. You also know these facts. We have been explaining them to our customers when we have the opportunity, as we are always cognizant of that specter which keeps bobbing up from time to time "SOCIALIZED MEDICINE."

Doctor, you can wield a tremendous influence in the thinking of your patients. When you agree with them that that druggist down the street is robbing them, you are tending to hasten the day when that specter will materialize. That druggist is maintaining a service which must be paid for and his charges are never, to our knowledge, commensurate with the skill and services he offers. Conversely we find the average dispensing charge made on prescriptions to be between 25 and 50 cents over the actual selling price of the medication.

In many instances of the higher priced prescriptions, the pharmacist seldom adds a dispensing charge. In the case of compounded prescriptions he will charge a reasonable amount for the time he must spend in compounding it.

Should there be any doubt in your mind relative to prices being charged we would welcome your advice and counsel.

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# Woman's AUXILIARY

## FALL BOARD MEETING

The Board of the Woman's Auxiliary to the Arizona Medical Association had its fall meeting at St. Joseph's Hospital, Phoenix, September 23, 1953. Since this article was requested to be more the impressions of a county president's first State Board Meeting and not a "blow by blow" description, I am free to digress at will!

The locale of the meeting could not have been more inspiring. All of Arizona is duly proud of the new St. Joseph's Hospital and pages could be written on it alone. But suffice it to say that both the delicious luncheon and the tour of the plant were greatly enjoyed by the board members. We are grateful to the hospital for making our meeting there possible.

Perhaps the biggest single impression I brought away from this meeting is of the importance of each auxiliary member in her own right. Being not only the impressions of a first board meeting, but also those of a new president and a comparatively new auxiliary member in the state's most newly organized county, this idea struck home. This year's program theme, "Know Your Community", is particularly applicable to those counties with Pinal Auxiliary's problems. Organization is our stickler — how to fuse a group which is so widely spread that even a meeting together presents major difficulties. But even semi-organized we are each one better equipped to serve our individual communities in those needs which are closest to us through our common role as "doctor's wife in the community."

Paradoxically, my other main impression was of the efficiency of the Auxiliary organization on the state level and what one can glimpse of the national level. I wish that each Auxiliary member in the state could attend a board meeting just to experience for herself the realization of the broad scope of activities and work being carried out by this, our own organization, of which each of us is an important and integral part. Fine progress is being made in many fields vitally concerned with the medical profession.

One of the most worthwhile projects is Nurse

Recruitment. Plans are being made for organization of "Future Nurse's Clubs", showing of films, and the stressing of this year's theme, "Nursing, the Opportunity That Knocks Twice". Closely allied with this is our Student Nurse Loan Fund. Started in 1950, it has now loaned \$3,800 to 15 girls. This is a real contribution to a real problem.

Another project vital to our interests is the Medical Education Fund. The national drive is \$10,000,000. Last year Arizona contributed \$150. It was pointed out that unless private enterprise is able to help the medical schools, the government would eventually be in control. Surely privately endowed colleges, universities, and medical schools are our biggest bulwark against the state controlled education which we all condemn.

The Legislation Committee is chiefly concerned this year with the Bricker Amendment, deduction from income of expenses for post graduate courses in advanced training, and tax deferment for retirement funds for self employed. These items affect the welfare of each of us.

Civil Defense, a subject we are becoming increasingly aware of, came in for a share of lively discussion. The question was raised as to how many of us as doctor's families actually had an adequate medical kit in our homes besides the usual band-aids and free samples. How many of us, if separated from our families during a crisis would have any pre-arranged plan of action? There is much work to be done in this field.

The other important committees, Program, Bulletin, Publicity, Public Relations, Today's Health, and Mental Health, all had interesting reports. But space grows short. In closing, I want to say that I left my first board meeting inspired to do all I can to help Pinal County Auxiliary become better organized as a unit of our State Auxiliary, and also to be a better individual representative of the Auxiliary in my own community contacts.

Mrs. H. Howard Holmes  
Pinal County President  
Eloy, Arizona

## THE STUDENT NURSE LOAN FUND NEWS

This year the Student Nurse Loan Fund issued loans to girls coming from various parts of the State. Three girls received full loans and a fourth a partial loan. Due to increased expenses in Nursing Schools the amount of the loan was voted to be raised by the committee from \$300.00 to a maximum of \$400.00 if necessary.

Our first two students who enrolled in nursing school in 1950, graduated this summer. One girl was an honor student throughout her schooling and the records of both were such that they hold responsible positions in their respective locations.

The overall picture of the Student Nurse Loan Fund since its inception 1950 is as follows:

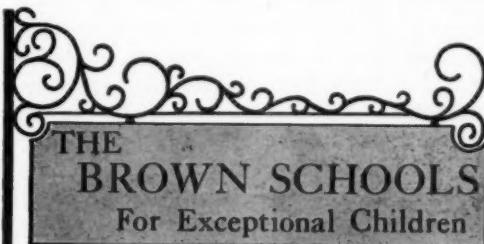
The total amount of money lent to 15 nurses is \$3,800.00. Quick repayment has been shown by girls having taken partial loans to finish school. Two girls relinquishing their school of nursing for unforeseen hazards such as marriage, promptly refunded the amount of their loans.

It is of interest to note that of the girls taking loans in Arizona, three came from Phoenix, five from Tucson, two from Prescott and one from each of the towns of Morenci, Miami, Kingman, Clifton, and Douglas. This shows a fair representation from all parts of the State. However, the Student Nurse Loan Fund Committee is anxious to interest all communities in this Fund.

The Woman's Auxiliary to the Arizona Medical Association is solicitous of more applications next Spring. The requirements for the loan are: The minimum of a grade B average in high school; a satisfactory medical record; ambition and integrity, and the need for the loan. The Loan Fund is a business proposition whereby a student may borrow money at no rate of interest, repayment of the loan at the rate of \$12.50 a month, beginning six months after receiving the state license.

Nationally speaking the available figures, though incomplete, show that the Student Nurse Loan Funds sponsored by the various Auxiliaries are doing impressive work. This year 24 state granted 212 students loans, the total amount of money utilized throughout the United States in 1953 being \$28,997.50. Auxiliary members in Arizona will be interested to know that the present phase of the nurse recruitment pro-

gram was started when Mrs. Jesse D. Hamer was national president the year of 1946-1947. Mrs. Donald A. Polson Chairman Student Nurse Loan Fund Committee, Phoenix, Arizona



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### FDA Has Reached No Conclusions On Boric Acid

The Food and Drug Administration is investigating the use of boric acid in infants' preparations, but has come to no conclusions, according to Associate Commissioner John L. Harvey. He said there was no plan to restrict distribution. Mr. Harvey said FDA was reappraising the subject of boric acid toxicity, and when all the facts are in, "hopes to be in a position to determine whether there is any necessity for label changes or other steps in order to adequately protect the public interest." He said information was being obtained from pediatricians and other medical practitioners,

as well as from sources from which "special studies of a controlled and reliable character" may be obtained. A.M.A. Washington Letter

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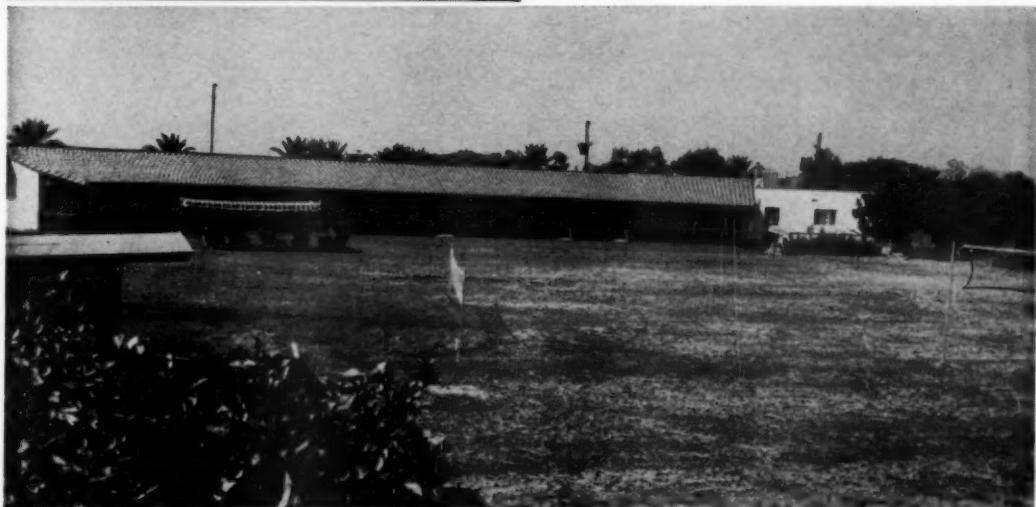
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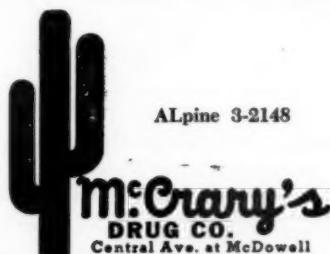
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